164 Eglinton Avenue East. Toronto. Ontario M4P 1G4 (416) 482-5131

THE WHISTLERS
NON-PERSONAL INTERPRETIVE MEDIA
EVALUATION STUDY

FOR: PARKS CANADA
WESTERN REGION OFFICE
CALGARY, ALBERTA

BY: VEIKKO PIIPPONEN
BEN BARKOW, PH.D.

WITH THE ASSISTANCE OF:
BETTY SCALZITTI
DARIAN WALLIS

DATE: FEBRUARY 27, 1984

Behavioural Team

BEHAVIOURAL TEAM, A CORPORATION
164 EGLINTON AVENUE EAST, TORONTO, ONTARIO M4P 1G4 (416) 482-5131

REPORT

on

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A. EXECUTIVE SUMMARY

1.0 Background

In the Interpretive Plan for the Canadian Cordillera, The Whistlers mountain was selected as an area to interpret the alpine tundra life zone for visitors to the Rocky Mountain region. A series of media including exhibits, panorama signs and trail signs were developed and installed to tell the story of The Whistlers. The installation of all the media at The Whistlers was completed in late summer of 1982. To determine how effective the media were in telling the story of The Whistlers, Parks Canada initiated an evaluation of the media to be carried out during the summer of 1983. Behavioural Team, a firm with considerable Parks Canada experience, was contracted to do the evaluation study and to report on the results.

2.0 Study Area

There are 11 signs and exhibits at The Whistlers which were evaluated. Their locations vary in the area of The Whistlers. The Hike Preparatory sign is located about 1.4 kilometres from the lower terminal building of the Jasper tramway. Visitors going to take the tram ride to the upper terminal building pass by the Parking Lot Preparatory signs, which are located beside the pathways people walk along. The Panorama signs, Pods A, B, C, and D, and the Trailhead B sign are on (or near) the boardwalk behind the upper terminal building where visitors disembark after their tram ride up. The Summit Locator, Register, and Trails End sign are all located at the summit of The Whistlers, approximately 1.4 kilometres along the trail from the boardwalk. The specific locations of the media (except the Hike Preparatory sign and the Parking Lot Preparatory signs) are shown in Figures 1 and 2.

3.0 Evaluation Study

The purpose of the study was to assess the effectiveness of the media at The Whistlers. Specifically, it was to evaluate how many pieces of measurable information the media were conveying to people, the levels of interest displayed in the media, and the performance of each of the media compared to established objectives.

FIGURE 1

LOCATIONS OF MEDIA IN THE BOARDWALK AREA AT THE WHISTLERS

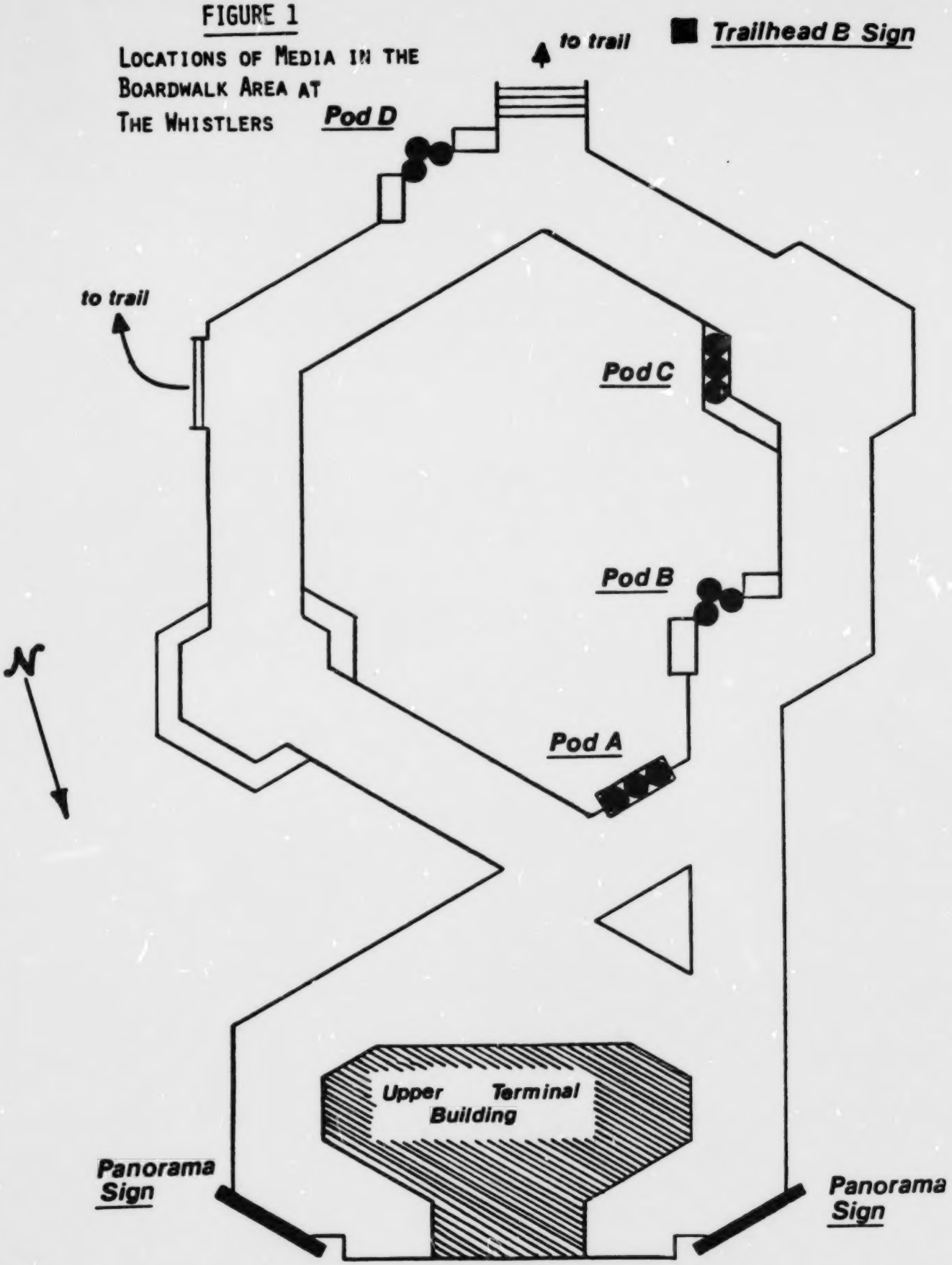
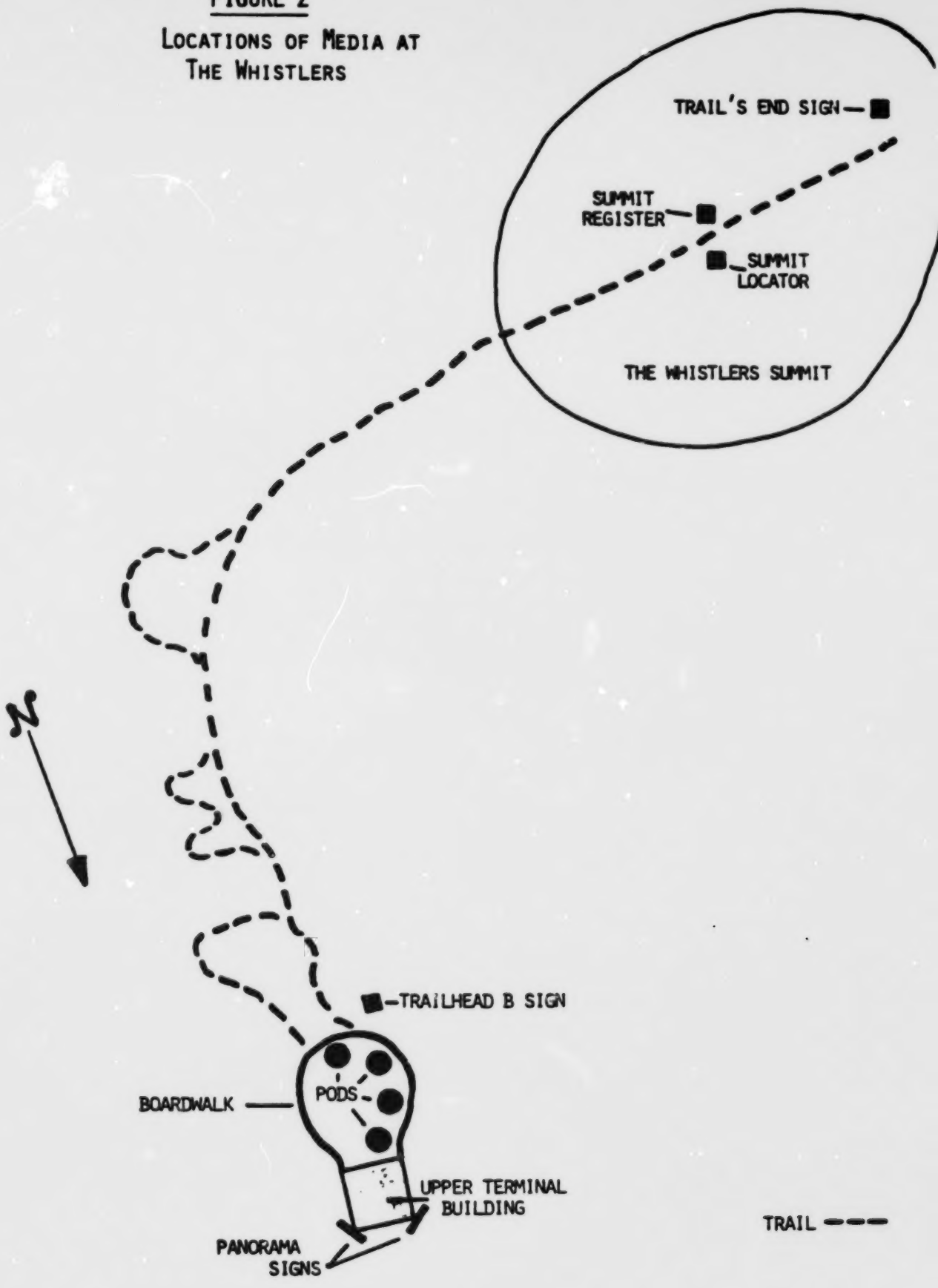
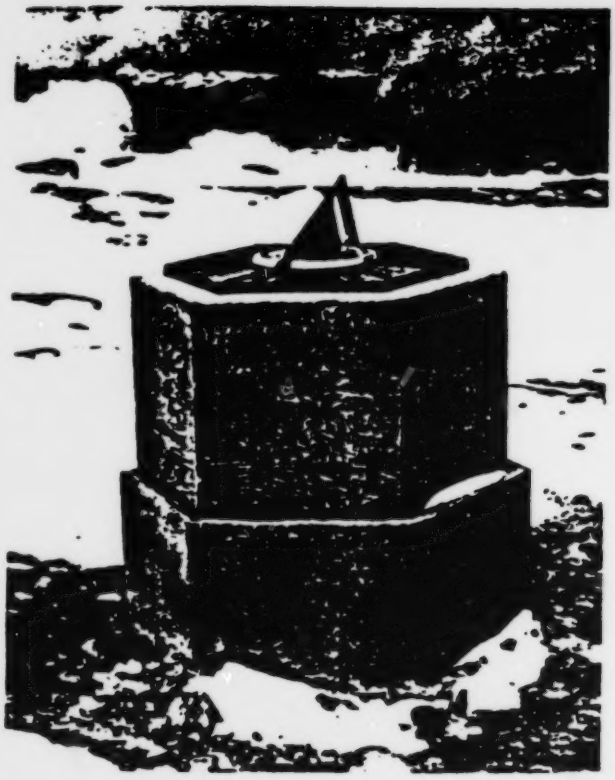


FIGURE 2

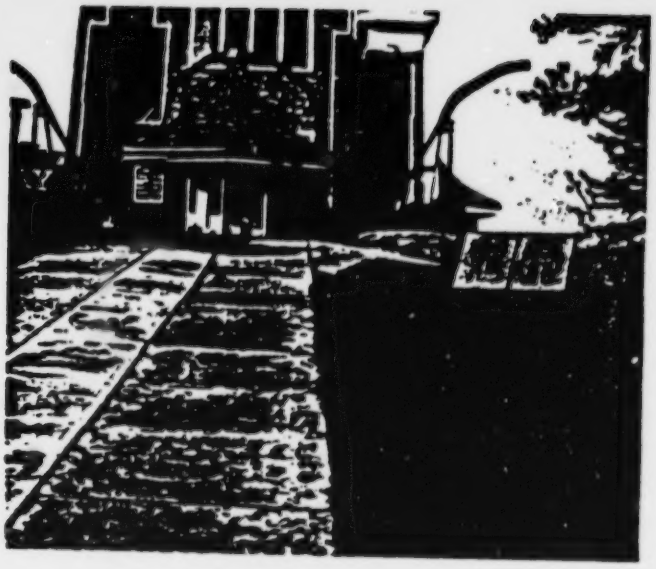
LOCATIONS OF MEDIA AT
THE WHISTLERS



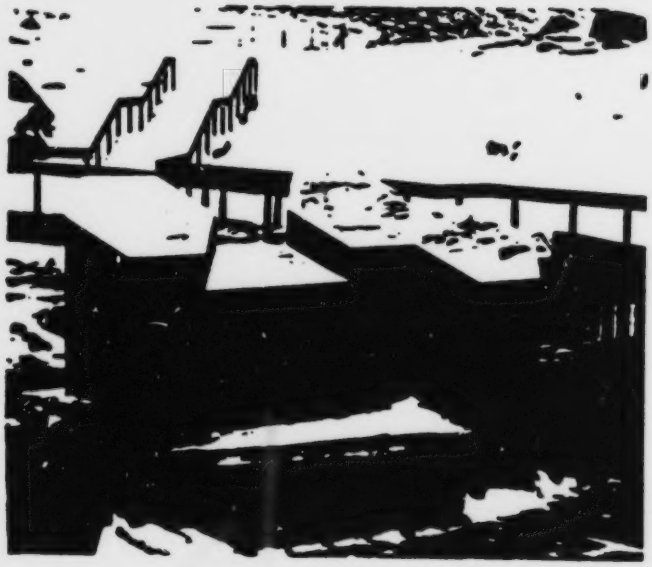
Examples of Media at The Whistlers



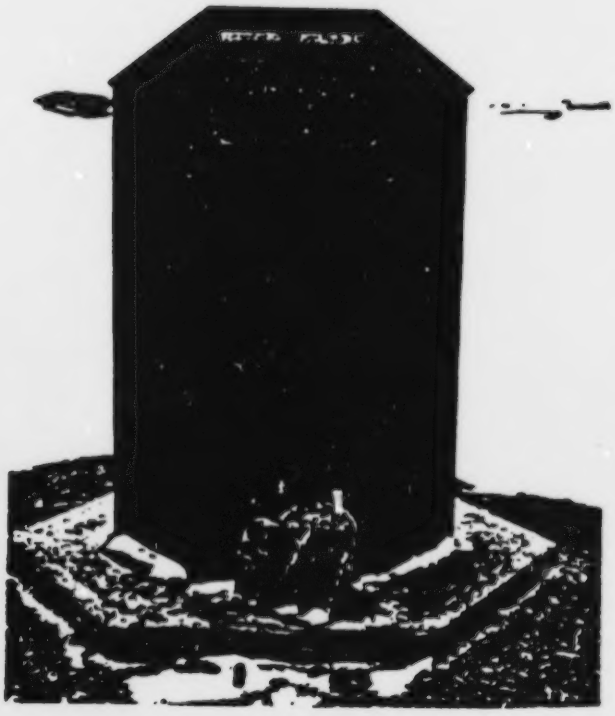
Summit Locator



Parking Lot Preparatory Sign



Pod B



Summit Register

Information for the study was collected during the period from July 29 to September 11, 1983, using a number of techniques. Visitors to The Whistlers were interviewed before they had read any of the signs or exhibits and after they had read them. As well, vehicle and pedestrian counts were taken, and visitor behaviour was observed. Overall opinions and reactions to The Whistlers were evaluated through the use of general questionnaires. In total, 1,425 visitors to The Whistlers provided information for the study. Over the study period, approximately 51,000 visited The Whistlers.

4.0 Results

With the results of so many specific evaluations, it was difficult to derive one absolute measure to use as an evaluation of The Whistlers media as a whole. In the context of this study, it is perhaps most meaningful to look at various sub-sections of the measurable objectives, and then to combine them all for one general summary figure.

The media evaluation can be broken down into three main components: (1) sign/exhibit interest; (2) information interest; and (3) cognitive (knowledge) achievement. First, the signs and exhibits had to be interesting enough to attract the attention of visitors. (The measure for this was "sign (or exhibit) stopping power.") Second, the information and display of each exhibit had to be interesting enough to maintain the attention of those who stopped at it. (The measure for this was "sign (or exhibit) holding power.) Third, and very dependent on the previous components, each sign was designed to convey information to people. (Results were compared to cognitive (knowledge-related) measurable objectives. Knowledge gains were also measured.)

A presentation of the degree of media use by visitors to The Whistlers sets the stage for the results which follow it.

4.1 Visitor Use

Conclusions about the effectiveness of the media at The Whistlers first need a context, a meaningful framework, in which to be considered. This context is how much use visitors make of the various signs and exhibits. The derived estimates of media use for each of the signs and exhibits are presented below.

Sign/Exhibit	Percent of Visitors to The Whistlers Making Use of Media
Parking Lot Preparatory Signs	27%
Panorama Signs	39%
Pod A	30%
Pod B	20%
Pod C	23%
Pod D	63%
Trailhead B Sign	14%
Summit Locator	29%
Register	27%
Trails End Sign	22%
Hike Preparatory Sign	1%

The above percentages give an indication of use of the different media. The figures can be averaged for an indication of use per media. Any one of the media was used by an estimated 27% of the visitors to The Whistlers, on the average. Careful attention must be paid to the interpretation of this figure to avoid misrepresenting media use. This is an average figure, which includes low use, such as with the Hike Preparatory Sign, and high use, such as with Pod D. It is a statement about use based on independent figures from all of the media. Care must be taken not to interpret this as meaning that 27% used all of the media (ie. stopped at and attended to each sign and exhibit). A correct interpretation is that, on average, any one of the media was used by an estimated 27% of all visitors to The Whistlers.

Since the results from each sign and exhibit are independent of each other, no reasonable estimate of the percentage of visitors using all of the media can be made. (There is no way of knowing, for example, whether the one percent who stopped at the Hike Preparatory Sign also stopped at any of the other exhibits.)

The highest percentage shown above can be used as an estimate of the maximum percent of visitors using some of the media. Approximately 63% used some of the media at The Whistlers. This

represents 32,130 visitors who attended to some of the media over the course of the study.

4.2 Sign/Exhibit Interest

The weakest aspect of the media is the stopping power of the signs: four of the 11 (36%) of the stopping power objectives were met. In some cases (Parking Lot Preparatory signs, for example), the media are at a disadvantage in stopping people because they are not located where people naturally congregate or stop, but rather where people pass them by. In other cases (Trailhead B sign), there is competition from features in the landscape, and from people's eagerness to experience other aspects of The Whistlers. As well, in the case of the pods, those in the middle (Pods B and C), are less likely to stop people. This is not because of flaws or weaknesses with the pods, but rather because of a seeming tendency for people not to stop as often at the middle of a number of objects.

Currently, the pods are situated on the west side of the boardwalk. The point above, about position being a disadvantage, is supported by the results: Pod A (closest to the terminal building) attracts 45% of those who approach; Pod B, 30%; Pod C, 35%; and Pod D (the fourth) 57%.

(These figures are not based on all visitors. They are based on those visitors who approach the media. Those who take different paths are not counted in these percentages. Therefore, the figures should not be compared to those on the diagram indicating visitor flow on the boardwalk. The figures in that diagram are based on all visitors. To clarify, while 30% of those who approach Pod B stop at it, only 66% of all visitors will approach the pod. The percentages in the visitor flow diagram reflect both these figures: 30% of 66% equals 20%. The comparison of stopping powers, as presented above, does not take into account visitor flow, as this is not relevant to the relationship between position and stopping power.)

Note how the middle pods - B and C - stop smaller percentages of people than the two end pods. Still, considering that 66% of the visitors pass by Pods A, B, and C, and 96% pass by Pod D, the current position of the pods is very reasonable. If, however, approximately equivalent percentages of people travel clockwise and counter-clockwise around the boardwalk - then Pods B and C would benefit by being moved to the other (eastern) side of the boardwalk. There, they would not suffer from being "in the middle" and they would be exposed to the same percentage of people as the western side. A brief in-depth study of the traffic flow around the boardwalk should be conducted before deciding to move any of the pods. If some of the recommendations about re-directing traffic flow are implemented, then a study conducted after these

changes is even more important before moving the pods. If many more people should use the western side of the boardwalk (where the pods presently are), then the advantage gained by moving pods B and/or C might be offset by the reduced exposure to people.

4.3 Information Interest

The interpretive media are successful in holding the attention of people: 60% of the ten holding power objectives were met. The content of the media, the drawings and graphics, and the interactive nature of the media contribute to this success. As well as being a measure of media performance, holding the attention of visitors is crucial to success in communicating the messages of the signs and exhibits - the cognitive objectives.

4.4 Ability To Convey Information

The media are very successfully communicating information about The Whistlers area to visitors. Of the 27 objectives related to acquiring knowledge, 85% were either met or exceeded. Another indication of the communication success is the amount that the media contributed to knowledge gain. There was an average gain in knowledge of 28% for each of the cognitive objectives. The highest knowledge gains were for specific information (where a trail leads to), whereas the gains for more general information (the name of the area - alpine tundra) were less. People often knew more general information before reading the signs, thus the signs contributed less to the overall general knowledge.

The most notable strengths, overall, are the "interactive" nature of many of the media (this promotes learning and retention), the graphics and drawings, and the straightforward messages in many of the texts. As well, it seems that when a sign or exhibit has a select few messages (as opposed to attempting to have too much information), the communication is more effective.

4.5 Summary

In summary, the interpretive media at The Whistlers are highly successful, as evidenced by the results:

- 36% of the objectives related to media stopping power were successfully achieved,
- 60% of the holding power objectives were met,
- 85% of the cognitive objectives were met or exceeded.

In total, 69% of all the set measurable objectives related to the media were either met or exceeded. (Note that the objectives related to tracking and the general questionnaires are not included here, since they do not reflect media effectiveness.) This summary figure leads to the conclusion that the media located at The Whistlers are highly successful.

5.0 Strengths

The success of The Whistlers interpretive media is the result of the individual successes of each of the signs and exhibits. Analyzing their individual strengths revealed a number of recurring aspects which indicate more general strengths of the media as a whole. These are summarized without prioritization as follows.

- The graphics are a definite strength of the media. The most evident example is Pod D which presents a map of the trail leading to the summit of The Whistlers. The stopping power of Pod D is the highest of all the media on the boardwalk, and this is a measure which is not dependent upon the position of a sign or exhibit relative to others. The map definitely enhances the stopping power in this case.

- The photographs and pictorial representations add a lot to the signs, and are considered a very positive aspect. This was a thought expressed by many visitors.

- The anodized aluminum backgrounds of the signs contribute to noticeability. Even on overcast days, light is reflected off the signs in such a manner as to draw attention to the presence of the signs.

- The "active" interest which many of the media attempt to elicit from visitors is a strength. It involves the reader with the landscape around him or her and increases the chances the reader

will pick up and retain the message presented. A very good example of this is the Summit Locator. Signs which require visitors to locate certain features are also an example.

6.0 Weaknesses

Though highly successful, media at The Whistlers do have some weaknesses which, if addressed, could only improve the already high level of success. As with the strengths, an analysis of the individual weaknesses revealed some general aspects which are summarized as follows.

- The general layout of the pods on the boardwalk seems to favour the first and last pods. Assuming equivalent percentages of people pass by all pods, rearranging the pods on the boardwalk would likely benefit those currently in the middle (Pods B and C).

- There is insufficient focus on important information using attention-drawing techniques. Material which is phrased strongly, is underlined, appears in heavy print, etc., is much more apt to be noticed. Important information should make use of some of these techniques.

- There is some inconsistency labelling and describing plant and animal life (important aspects are not <u>always</u> labeled and/or described).

- Visitors experience some confusion when trying to identify drawings of animals and plants in real life. This is largely because the animals (and plants) are not shown according to scale. In other words, animals which in real life may be very different in size are not shown this way in the drawings, making it difficult for visitors to identify them.

- Visitors do not know they are in the alpine tundra life zone. People had difficulty recalling the specific term "alpine tundra." They seem to think of the obvious, or the well-known - "the top," "The Whistlers" - rather than the specific term.

The underlying theme of the media at The Whistlers is "life in the alpine tundra." Thus it is assumed to be important that people know what alpine tundra is and why it is so special.

- In some cases, the messages are not forceful enough. The Parking Lot Preparatory signs are a good example of where important information about weather conditions and the need for warm clothing does not seem to have much of an effect. A number of visitors interviewed on the boardwalk, and especially at the summit, commented that they had read the signs, but had not taken the messages to heart for some reason. Thus, they were unprepared for

the actual conditions they experienced. If important information is presented only once, then it must be presented emphatically and emphasized. This should minimize any problems with subtle messages.

- Most of the media are not protected from either the elements or vandalism. There was evidence of vandalism on a number of the signs (initials and graffitti scratched on to the surfaces). Also, in many cases it was evident that the paint was easily peeled off the metal supports of the signs.

7.0 Observations

Conclusions listed here are not evaluative in nature. They do not reflect performance of the media, but rather observations which might be of use in other media projects, as well as media located at The Whistlers.

- The arrangement of a number of exhibits relative to each other can affect the percentage of people stopping at each exhibit. Assuming that the same number of people pass by a number of exhibits which are arranged in a serial order (such as the pods on the boardwalk), there is a tendency for more people to stop at the first and last few exhibits, and less of a tendency to stop at those in the middle.

- The presence of the media at The Whistlers is a facet of Jasper National Park which visitors enjoy and which contribute to an increased knowledge about not only the area, but some of the practices which are important to follow for all park visitors (for example, not to feed the animals or pick the flowers). In summary, the results of this study lead to the conclusion that the interpretive media at The Whistlers are very successful.

8.0 Recommendations

The Whistlers media are successful as they stand. Their performance reveals underlying strengths rather than weaknesses. In keeping with this focus, the recommendations made in this section are intended to provide direction to further enhance the performance of the media at The Whistlers. The recommendations are based on the results and conclusions presented earlier.

The recommendations are organized into three sections: immediate, long term, and recommendations for future media projects. Immediate recommendations are those which could be carried out with a minimum of time and expense. Little, if any, design work is

involved, and the signs and exhibits would not have to go "back to the shop" for major modifications, at least for the most part. Long term recommendations are ones which take more time and clearly cost more. They involve sending many of the signs to be re-worked, and require more labour generally. Recommendations for future projects apply to other similar media projects which are in various stages of design and planning. Other media projects can benefit by the insights gained from this study of the media at The Whistlers.

8.1 Immediate Recommendations

- Important information on all of the media should be emphasized in such a way as to draw visual attention to it. This can be accomplished by using bolder type, or, if this is economically unfeasible for existing signs, by underscoring (underlining) the important information.

- Perhaps both metres and feet should be included to indicate the mountain heights, distances, and other measures. Alternatively, scales showing both should be added.

While no figures were collected during the study, it seemed there were park visitors from many countries, most notably the United States. As a public relations gesture and as a consideration to those who live within the Imperial system, the use of the two systems should be considered. This might even serve in an educational way. Those who cannot relate to metric might start to get a sense of how it compares to their system, if the two appear side by side. This type of presentation is recognized as perhaps deviating from Government policy at some level. However, considering that the National Parks represent Canada to foreign visitors, and that the use of two systems would not likely be detrimental to "the cause" (going metric) if used only in this context, the use of both systems should at least be a consideration. Controversy about value (ie. "How many people does this effect? Is it worth it?), aside from public relations, can be addressed through a carefully conducted quantitative study.

- Add brief descriptive information for each illustration of plant and animal life depicted, so visitors can easily distinguish among the various types of life they see (ie. average length, weight, height, colour, etc.).

- Add lines connecting the names of plant and animal life to the illustrations. This will serve to remove any doubt about which name refers to which plant or animal. This is particularly important on signs or exhibits where there are a number of illustrations which might confuse readers.

- Accent every instance of the term "alpine tundra" by using bold text and/or underscoring the term.

- Relocate either Pod B or C (or both) if further study were to find approximately equivalent percentages of people passing by both sides of the boardwalk. This could be accomplished (if necessary) by rearranging the pods so they are more evenly distributed about the boardwalk. The result would be one (or two) pods on the east side of the boardwalk, and the remaining pods on the west side, where they currently are.

- Redirect visitor movement to encourage more people to walk around the boardwalk in a counter-clockwise direction. Removing part of the boardwalk (see Pod A, above) would direct all people to the beginning of the side with the pods.

- Provide waste receptacles at the summit of The Whistlers, at two or three intermittent points along the trail, and at the Hike Preparatory sign at the beginning of the trail leading to the upper terminal building.

8.2 Long Term Recommendations

- The illustrations on all of the signs and pods should be labelled and described so visitors can easily identify what they see in real life.

- Consider adding signs specifically emphasizing the term "alpine tundra." These signs should be located near the area at the lower terminal where people line up to take the tram car to the top.

- The text of signs conveying important information should be changed to make the messages "more blatant." This was a comment expressed by a number of visitors, and also reflects the opinions of the fieldworkers, after discussions with people.

The important information seems to be: stay on the trails (the crossed-out boot sign was sometimes mistaken for "no boots allowed," and "make sure your boots are tied up properly" (young male visitor)); do not feed the animals (as well as why not to - this is an important motivator); do not remove the rocks (and why); and information about preparing for a visit to the upper terminal area. While many people interviewed after reading the Preparatory signs at the lower terminal knew to expect harsher weather conditions at the top, just over half of those interviewed at the top thought they were adequately prepared for the conditions they experienced there. As one hiker suffering from being inadequately prepared for conditions at the summit suggested, the degree of temperature change (including the likely wind chill factor) should be part of the

text preparing visitors for conditions at the top.

- Change the illustrations so that the plant and animal life are shown in proportions found in real life. If a Hoary Marmot is about three times the size of a Columbian Ground Squirrel, then the illustrations should reflect this proportional difference in size.

- When it is important that visitors remember certain information, the text should be phrased to make the message very clear, even at the risk of overdoing it. Subtle messages will surely escape some who read the signs.

- There were few noticeability problems with The Whistlers media, and, as a "stand alone" interpretive area, the colour of the media supports (dark brown) should remain the way it is. However, if the colour scheme is changed in other media projects, or areas, there should be consistency between them and The Whistlers media.

- Install a highly durable, changeable, transparent covering on the signs. This would not discourage vandalism, but replacing the covering would be less expensive than refinishing or replacing vandalized signs. As well, perhaps the paint used for the metal supports (or frames) could be baked on to make it more resistant to peeling. This might be more expensive initially, but could prove cost-effective in the long run.

8.3 Recommendations for Future Projects

- Pre-test the layout of future boardwalks and/or walkways, if at all possible. In making this recommendation, it is recognized that pre-testing all possibilities is unrealistic. However, pre-testing a layout design which might be used in a number of media projects could provide useful information. [Behavioural Team are currently testing formats and messages of changeable electronic highway signs.] For instance, there might be a number of situations where a boardwalk with exhibits will be of a circular design. If pre-testing revealed that exhibits located somewhere near entrances and exits from the boardwalk were the most noticed, this could be incorporated (as much as possible) into each project which had a similarly planned layout. Cost considerations should be carefully considered.

When considering various alternatives at the planning stage of a media project, attention should be paid to a combination of stopping powers and traffic flow. (A guideline is presented in the Recommendations section.)

- Pre-test mock-ups of the signs or exhibits while they are still in the design phase. Pre-testing is the most beneficial when a major change is contemplated (round versus rectangular signs, as an example) or when a controversial issue cannot be resolved. Pre-testing is important when whatever outcome can have widespread effects (new designs for all future media, for instance).

- Encourage "active," easy participation, as much as possible, on the part of any reader of a sign or viewer of an exhibit. This is an important thrust when an interpretive media project is still in the planning phases.

- When planning future interpretive media projects, careful consideration should be given to what the overall interpretive objectives for the area are. Are they to have visitors pick up a "core" of information about the area, or to have visitors know a variety - a breadth - of highly specific information? Clearly defining the goals should guide the creative efforts aimed at developing text and pictorial representations, as well as the development of measurable objectives for the media (see Discussion of Methodology). If goals are not defined clearly, with strong underlying rationales, the whole media project, from design through implementation and evaluation, is off to a handicapped start.

- Critically consider using the results of this study and the guidelines outlined in the Discussion of Evaluation Methodology section when setting criteria for measurable objectives of future media evaluation studies. (See section H.)

- If Parks Canada has the results for other media evaluation studies, they are a rich source of information. It is suggested that the data undergo secondary analyses. This should be conducted by a contractor familiar with the types of studies being analyzed, the methodology, and with an expertise in data analytic techniques. Secondary analyses are a way to "mine" information without the resources necessary for a full-scale study.

The insights provided from this kind of questioning and analysis can be useful to future planning projects.

B. BACKGROUND

The Whistlers Interpretive Management Unit (IMU) is one of a number of IMU's for Jasper National Park. Together they form part of the Interpretive Plan for the Seven National Parks of the Canadian Cordillera. The Whistlers was selected as an area to interpret the alpine tundra life-zone for visitors to the Rocky Mountain region.

The Whistlers mountain is located approximately seven kilometres from the Jasper townsite. There is a commercial tramway which takes people nearly to the top of the mountain. A 1.4 kilometre hiking trail leads from the boardwalk behind the upper terminal of the tram to the summit of The Whistlers. Additionally, there is a hiking trail up the mountain to the upper terminal, starting near the The Whistlers hostel. The area is very popular among Park visitors for the tram ride up the mountain, and the spectacular view from the top. Interpretive signs are located at the beginning of the hiking trail, both terminals of the tram, and along the hike to the summit.

The installation of the pods on the circular boardwalk behind the upper terminal of the tram was completed in August, 1982. All of the remaining signs were in place the following month. Parks Canada decided to conduct an evaluation of the media located at The Whistlers mountain, one year after their installation, and contracted Behavioural Team to carry out the study.

C. EVALUATION OBJECTIVES

The objective of the study was to evaluate the effectiveness of the media at The Whistlers mountain, specifically to:

(1) - evaluate the performance of each of the media and sites by comparing the study results to predetermined measurable objectives;

(2) - evaluate the level of interest generated by the media; and

(3) - assess the knowledge gain of visitors' reading the media.

(Refer to Appendix A - Glossary of Terms, for definitions of terminology)

The specific measurable objectives relevant to each of the media are presented in their respective sections.

D. METHODOLOGY

Procedure

A number of data gathering techniques were used during the study. Interviews with visitors to The Whistlers were conducted at all of the media. (The only exception to this was the Summit Register, where only observations were made.) As well, visitors' behaviour was observed, and a number of pedestrian counts were taken. Data were collected during the period from July 29 to September 11, 1983. Four individuals interviewed and observed a total of 1,425 visitors to The Whistlers over the course of the study. All data were recorded on the forms developed and pre-tested by the Parks Canada Evaluation Team.

Long before the study began, Parks Canada set specific objectives for each of the media located at The Whistlers (ie. 75% of those who stop at Pod D will know that it harms the animals to feed them). To achieve the first evaluation objective, the post-test results (see Appendix A for definitions of terms) and the stopping powers were compared with these measurable objectives as performance indicators of the media.

The second evaluation objective noted above was achieved by calculating two measures of media interest.

The media interest levels were evaluated by calculating the percentage of people at the site reading (or interacting with) the media. This is called "media stopping power." Observers counted the number of people at the site over given periods of time, and noted how many stopped to read or look at the sign/exhibit. All the people at the site were counted, regardless of which direction they arrived at the site from. The media interest levels were also assessed by calculating "holding power." This compared the length of time visitors spent at the media with average lengths of time for reading the texts. Observers timed how long visitors who read (or spent time at) each media did so. These times were averaged for each sign. Then, some visitors and Parks Canada staff were asked to read the text of each sign while being timed. Their reading times for the text were averaged. The average length of time visitors freely spent at a sign was then compared to the average text reading time for that sign, to indicate the "holding power" of the sign.

In the case of the Summit Register and the Summit Locator, holding power was not calculated. How interested people were in these exhibits was assessed by calculating the stopping power (as

outlined above) and by noting how long visitors stayed at these exhibits. This deviation from the standard way of assessing media interest levels was necessary because the Register and Locator have no textual information to speak of. Thus, no comparison to an average length of time for reading the text was possible, as was the case with other media.

A different questionnaire was used for interviews about each sign or exhibit. In order to achieve the third evaluation objective, some people were asked to answer the questions before they had read the specific sign (pre-test interviews). Others were asked to answer after reading the sign (post-test interviews). The pre-test results were compared to the post-test results in order to reveal whether or not people were gaining knowledge as a result of reading the sign. This comparison of the two sets of results also showed how much knowledge they gained.

As well, two general questionnaires were used to assess visitors' overall reactions to The Whistlers, and to assess how much general knowledge they had before and after visiting the area. Visitors behaviour was also "tracked" (see Appendix A) as they walked about the area near the top of The Whistlers.

The data were tabulated and analyzed by comparing the percentages of pre-test and post-test respondents answering each question correctly. For questionnaires which were neither pre-test nor post-test, percentages for each answer of each question were analyzed. The appropriate percentages were compared to those set out in the measurable objectives. Numeric data (ie. length of time reading a sign) were analyzed by looking at the averages.

In all cases standard errors and standard deviations were calculated. These were used to determine the confidence intervals for the obtained results. The confidence interval for a result indicates the range of results which could be expected if many different samples of people were interviewed from the population of all visitors to The Whistlers (see Appendix A). If the confidence interval for any particular result included the criterion for the measurable objective, then that objective was considered successfully met. For instance, if the confidence interval for a 70% result ranged from 62% to 78%, and the objective was 75%, then the objective was considered successfully achieved.

For a detailed description of the methodology, the sample population, and the sampling procedure, refer to "The Whistlers Non-Personal Interpretive Media Evaluation Project Planning Report," Boyle, May, 1983.

Sample

The overall sample was from the total visitor population to The Whistlers during the study period. Jasper Tramways, which operates the tram service at The Whistlers, keeps daily records of the number of visitors using the tram. These records were made available for purposes of this study. Based on these counts, the total number of visitors to The Whistlers during the study period was estimated to be 50,878 (51,000 for all intents and purposes). These figures, of course, exclude those who decide to hike up the mountain. The percentage of people who do this is estimated to be very small.

The sample for each site was drawn from a population of either:

- all those reading (or interacting) with the media (in the case of a post-test questionnaire);

- all those potentially reading (or interacting) with the media (pre-test questionnaire); or

- all those at the site location of the media (neither pre nor post-test).

In total, 832 people were interviewed. Of these, 50% were involved in the pre-test interviews, 35% in the post-test, and 15% responded to general questionnaires. As well, 593 people were observed, counted and/or timed for the media stopping and holding power calculations, and the behavioural observations.

All the data collection was conducted according to the schedule drawn up by Parks Canada (see Appendix B).

E. RESULTS

1.0 Parking Lot Preparatory Signs ("All Aboard The Alpine Express" - lower terminal)

1.1 Description

Two pathways from the Jasper Tramway parking lot at The Whistlers mountain lead visitors past two identical signs which convey information about the conditions to be expected at the summit, and which suggest suitable clothing/accessories appropriate for expected conditions. The signs rest on single posts and are angled for easier reading. Visitors must pass these signs on their way to the lower terminal of the tram.

1.2 Findings

Measurable Objectives	Results	Knowledge Gain
Of those who read the preparatory signs at the lower terminal of the tram,		
- 75% will know that weather and terrain conditions at the summit may be harsher than below.	62 ±15%	42%
- sign stopping power: 75%	27 ±5%	N/A
- sign holding power: 1.0	0.88	N/A

1.3 Discussion and Conclusions

Though the result for the cognitive objective is 13% short of the goal, the confidence interval indicates that, if repeated samples of visitors to the Whistlers were interviewed, the results would range from 47% to 77%. Since the 75% objective lies within this "interval of confidence," the signs are considered successful.

One factor which likely did have an influence on the results should be mentioned. This was the criterion used to judge the respondents' answers as correct or not. To qualify as correct, an answer had to include at least three aspects of what constitutes "harsh conditions" (ie. cold and windy and changeable) unless the specific term "harsh" itself was used. If a respondent mentioned fewer than three, the answer was deemed other than correct. Had a less strict definition been used (ie. two aspects of harsh conditions), the results would very likely have surpassed the measurable objective.

The success of the signs is evidenced by the knowledge gains.

Before reading the signs, only 20% knew (or correctly guessed at) the right information, while 62% of those who had read the preparatory signs knew it: a 42% gain in knowledge! There is a hint that some visitors, at least, while gaining knowledge from the signs, feel that the message could be expressed more strongly. A man interviewed on the boardwalk about one of the pods, volunteered that though he had read one of the lower terminal preparatory signs, he didn't really pay it heed before coming to the upper terminal. When he arrived, he realized the extent of the temperature difference, and was unprepared for it. He suggested that the signs could be more emphatic, and stress the kinds of temperature differences to expect. Whether or not his comment is representative of other visitors cannot be determined. Clearly, though, park visitors are picking up information about conditions at the top. The presentation of the information (table format listing how to be prepared, and why) likely contributes to effective communication of the message.

Unfortunately, not enough people are gaining this knowledge. Only 27% exposed to the signs bothered to stop and read them. (This represents 13,770 of the estimated 51,000 visitors to The Whistlers during the study period.) There seem to be four contributing factors, three of which are unrelated to the signs themselves.

First of all, part of the attraction at The Whistlers is the tram ride. People who go there are eager to take the ride to the upper terminal. As such, they are less likely to stop to read the signs. Secondly, this effect is compounded when visitors' available time is limited, as is the case with bus tours. Third, when a line-up for the tram ride is visible, people are less likely to want

sacrifice a spot they could get in line, in order to stop and read the signs. Finally, there may be aspects of the signs which influence their stopping power.

People have to notice a sign in order to read it. Making the signs larger would undoubtedly make them more noticeable, although this does not seem to be a problem. The choice of a highly brushed "golden" metal background is an excellent one. The signs are very noticeable, especially when they reflect the sun. (This is the case with all the signs of similar design.) The problem with the preparatory signs is their location. While they are very noticeable because of both their design and location, they are situated where people walk by them. They compete with visitors' eagerness to experience the tram ride and to get to the top. Their location thus contributes to the low stopping power when coupled with the factors mentioned above.

The results for holding power of the signs indicate that people are not spending quite enough time to read the text completely, even though there is a considerable knowledge gain. The gain reflects knowledge obtained by reading a portion of the sign. It may be that the non-media related factors mentioned above also influence the amount of time people are willing to spend reading the signs.

In total, one of the three measurable objectives is successfully met.

In summary, the results suggest the following conclusions:

- Since the objective is within the confidence interval for the results, the signs are considered successful in communicating the message that weather and terrain conditions at the top of The Whistlers are harsher than below.

- The signs are effective as reflected in the considerable knowledge gain demonstrated by those reading them.

- The location of the signs adversely affects how many people stop and read them, given the circumstances with visitors arriving at the lower terminal.

- People are not reading the signs completely.

1.4 Recommendations

- Re-locate the signs so they appear before a more captive audience. If people who are lined up to take the tram ride up could read the signs as they waited, many more would likely read them. (This could also be accomplished by installing a third sign somewhere in the vicinity of those waiting for the tram car.) Also, people might be more inclined to read the sign(s) completely.

- If the signs remain where other attractions compete with them for visitors' attention, then the criterion for the sign stopping power objective should be lowered.

- Emphasize important information by using bolder type on the signs.

This is a recommendation for <u>all</u> signs, especially where study results indicate that people are not spending enough time to read all the text on the signs. If people do merely "skim" the sign, then at least their attention will be drawn to the important points.

2.0 Panorama Signs ("Land Above The Trees" - boardwalk)

2.1 Description

A Panorama sign (there are two of them) greets visitors who set out on the boardwalk from either of the tram cars or either side of the terminal building. The signs are located at the very beginning of the boardwalk, approximately 5 metres from the point where visitors disembark from the tram cars or exit from the terminal building. They depict the actual scenes viewed by visitors if they look over the signs, and include the names of various natural features found in the landscape. The accompanying text states that the area above the treeline is alpine tundra and that there are interpretive exhibits behind the terminal. It encourages visitors to hike to the summit and discover the plant and animal life about the area.

2.2 Findings

Measurable Objectives	Results	Knowledge Gain
Of the visitors who look at the Panorama (signs),		
- 75% will be able to point out and name one natural feature in the landscape	54 ±20%	- 25%
- 75% will know the area above the tree line is alpine tundra	63 ±19%	29%
- 50% will know there are exhibits in the vicinity of the terminal	38 ±19%	11%
- sign stopping power: 75%	39 ±5%	N/A
- sign holding power: 1.0	0.80	N/A

2.3 Discussion and Conclusions

The results seem to indicate that the Panorama signs are not communicating information about specific features in the landscape. The interval range is just short of the 75% goal. Indeed, the 25% knowledge loss is quite disturbing as well as puzzling, considering the wealth of information on the Panorama signs. An in-depth investigation of respondents answers provides an explanation for the results.

An analysis of the incorrect answers from post-test interviews revealed that just under 73% (eight of the 11) were not correct because respondents answered in a very general way (ie. "mountains," or "rivers"), even though their answers were probed by the interviewers.

Note that their answers were not wrong - they were simply not correct, since only a specific answer qualified as such. Perhaps the objective of having visitors pick up specific information should be reconsidered. Thought must be given to what it is exactly that Parks Canada wants the visitor to leave with.

Since there is an abundance of information on the Panorama signs, it is possible that post-test respondents are experiencing "information overload" - they have just read the names (and noted the locations) for many mountains, lakes, rivers, etc. When asked to recall a specific name, there may be a tendency to "fuzz" the information together, and give a general answer. After all, reading the names of, say, ten lakes, would certainly impress upon readers that there are many lakes in the area, although one specific name of the ten might be difficult to recall. A reasonable answer, then, if asked to point to and name one natural feature would be a general one such as "lakes."

Related to this is the wording of the question. Respondents are required to "point to and name one natural feature." The words in the question are open to interpretation. Does "natural feature" mean "Mount Robson," or does it mean "mountains"? Which interpretation is going on in the minds of respondents cannot be known.

The pre-test respondents, on the other hand, have not been exposed to as much information. They may have a few well-known names in mind, perhaps from the tram operators' commentary during the trip up. When asked to name and point to a specific natural feature, it is easier for them to answer correctly. If this theory is true, then one would expect most of the correct pre-test responses to be accounted for by perhaps two or three right answers. The post-test correct answers would be more varied. An analysis of the answers reveals this pattern exactly: 73% of the correct pre-test answers are accounted for by only two specific answers, "Athabasca River," and "Mount Robson." Both of these natural features are

usually mentioned in the commentary made by the tram operators. These two answers account for only 38% of the correct post-test responses. There is a wider distribution of correct answers among the post-test results.

In conclusion, the Panorama signs are communicating information about the various natural features in the landscape. The abundance of information causes people to "chunk" specific information into more general categories because of an "information overload" effect.

A sizeable majority (63%) of visitors do know that the area above the tree line is alpine tundra, although the result falls 12% short of the objective. Considering the interval range for the result "captures" the objective, the Panorama signs are considered successful in this respect. Responses indicate some people think of the area as "the summit," "the top," and do not recall the name "alpine tundra." The knowledge gain (29%) is further evidence of the success of the signs in this respect.

Though a minority of people knew that there were exhibits in the vicinity of the terminal, the confidence interval for the result indicates that from 19% to 57% would be expected to know this if many samples of people from all those at The Whistlers were interviewed. Since this interval includes the 50% objective, the Panorama signs are considered successful. Many of those who did not mention exhibits in the vicinity, think they can read more about the area from pamphlets, brochures, handouts from the Information Centre in town, and so on.

Results indicate the Panorama signs are not successfully attracting the 75% of visitors set for the measurable objective. Only 39% stop at the signs. This seems to be less related to the signs themselves than to the apparent state of visitors' minds when they arrive at the upper terminal. Based on observations, many people seem very eager to look at the view, walk around, hike on the trail, and so on. The signs compete to a degree with people's eagerness to experience much of what else is offered at The Whistlers. Evidently, in this case, the signs come out second best.

People are not spending enough time at the Panorama signs to completely read the text, at a minimum. If they are looking at the representation at all, then they are merely scanning the text at best. It is very likely that those stopping at the signs are influenced by the same urge as those not stopping: an urge to move on in order to experience the rest of what's there. Thus, they may stop briefly before moving on. It is also likely that many of these same people will stop again at the signs after hiking, or walking around the boardwalk, or whatever. They may be spending more than ample time at the signs, over two or more different periods. The study results do not lead to any conclusive comments about this possibility.

In total, three of the five measurable objectives were met.

Following is a summary of the conclusions about the Panorama signs:

- The signs do inform people about the features to be found in the landscape, although the measurable objective is not formally met.

- The amount of information on the signs contributes to an "information overload" effect, causing people to "chunk" specific information.

- The signs are successful in informing people that they are visiting the alpine tundra.

- Though some people are not picking up the information that there are exhibits behind the terminal building, the objective is considered successfully met.

- People are not spending enough time at the signs to read the text completely.

- Attraction to the signs, and time spent at them, is diminished, to a degree, by visitors' enthusiasm to experience other aspects of their visit to The Whistlers.

2.4 Recommendations

- If it is important that visitors remember very specific information about landscape features, then some of the many names on the representations should be removed. This would increase the likelihood that some of the remaining specific information would be remembered. However, implementation of this recommendation would be at the cost of reducing the wealth of information presently available to visitors. Despite the fact that survey respondents did not remember specific names, it seems to the author that providing more than enough information wins out over potentially not providing enough.

- The specific objective related to this should be given second thought. This is not to suggest that the objective should be changed, but only that Parks Canada re-think the present objective in relation to whether specific or more general information is what visitors should be learning.

- The fact that the area above the tree line is alpine tundra should be stressed more strongly. This can be

achieved by the use of heavier, bolder type, or underscoring the relevant parts of the text. Alternatively, the text itself could be changed for more emphasis.

- The text should be changed to more strongly stress that there are informative exhibits beyond the terminal building. Perhaps people come to know this as they turn from the Panorama signs and look toward the boardwalk. If this is the case, the cost of changing the text might not be justified. At the very least, however, small separate signs with a directional arrow, and a label such as "exhibits" should be placed near the Panorama signs. These would have the effect of reinforcing what people have just read, and encouraging them to take a walk on the boardwalk.

- A change of location for the Panorama signs could be a consideration. If they were moved further away from the terminal building and tram car exits, more people who tend to pause some distance away from the "rush" of people would likely pay attention to the signs. However, this would be at the cost of (likely) changing the representation on the signs to portray what visitors see from the new locations, unless the signs could be angled appropriately. It would also mean that those exiting the tram cars and terminal building would not see the signs immediately. All considered, it is recommended that the Panorama signs retain their present location.

- For future evaluation studies, a methodology should be developed to accurately determine how much time any one person spends at the signs, regardless of how many times they stop at the signs. As mentioned earlier, visitors may be spending more than enough time at the signs to meet the objective, although this time could be the result of returning to the signs on a number of different occasions during their visit.

3.0 Pod A ("Alpine Tundra" - boardwalk)

3.1 Description

Pod A interprets the delicate nature of the alpine tundra for visitors and explains that it's preservation is the reason it is part of Jasper National Park. It is an exhibit which combines text with three hexagonal pictorial representations depicting wildlife in the alpine tundra.

Following a counter-clockwise direction on the circular boardwalk, visitors exiting from either the tram cars or the upper terminal building will walk by Pod A. Any person coming on to the boardwalk from the trail and walking clockwise will also pass Pod A. (With all the pods, of course, everyone who walks completely around the boardwalk will pass by them. Refer to the diagram of the boardwalk for various directions mentioned and for the locations of the pods.)

3.2 Findings

Measurable Objectives	Results	Knowledge Gain
Of those who read Pod A,		
- 75% will know where plant and animal life exists in the alpine tundra.	70 ±20%	39%
- 75% will know the area is protected in a National Park.	55 ±22%	2%
- sign stopping power: 60%	45 ±7%	N/A
- sign holding power: 1.0	1.1	N/A

3.3 Discussion and Conclusions

While 5% short of the objective, a considerable proportion of people reading the text (70%) do know where plant and animal life exists in the alpine tundra. The confidence interval for the result includes the 75% objective, and Pod A is considered successful in communicating information about plant and animal life in the alpine tundra to visitors. Further evidence of success is the 39% gain in knowledge.

This is also the case with the second measurable objective shown above. While results are 20% short of the goal, the confidence interval is such that it includes the 75% objective (the range is from 33% to 77%). As such, the measurable objective is considered to be successfully attained. However, there is only a 2% gain in knowledge. Pod A does not contribute very much to this success. Evidently, this is information people already know, or can easily guess at. The answers of numerous people indicate they think the area is in a National Park because it is unique, interesting, and can be seen by many people.

Pod A attracts 45% of those who pass by, slightly short of the 60% objective. This does represent, though, three-quarters of the objective, and while by no means a success, also represents nearly half of the visitors. The criterion for the objective should be reassessed and perhaps lowered to somewhere in the 50% vicinity.

Though not a factor in the stopping power, the position and the layout of the boardwalk is such that people who choose to walk around the boardwalk clockwise to get to the trail do not pass by close enough to Pod A to be within a reasonable "attracting" distance (refer to the diagram). This is also the case with people who are returning from the trail and walk counter-clockwise around the boardwalk to get to the terminal building. In both situations, people may see the back or side of Pod A, but are never exposed to the text or pictorial representations - the part of the pod which is the reason people stop.

The exhibit is quite interesting to those who do stop at it, as evidenced by the result for holding power: the 1.1 result surpasses the measurable objective. This can be interpreted as a reflection of interest generated by both the text and the pictorial representations.

In addition to the data presented above, informal questions asked of respondents revealed that there is some confusion when they try to relate the pictorial representations of wildlife to the real thing(s). The problem is not with the drawings at all, as this seems to be a strong point with Pod A as with many of the media. The difficulty is that the sizes shown are not relative to each other. For instance, a ground squirrel is shown to be about the same size as a pika. When visitors see real ground squirrels and

pikas, they have trouble identifying which is which because they don't know which are the smaller ones. As well, the lack of names accompanying the illustrations can contribute to some confusion, as reflected in this comment, overheard next to Pod A:

"What's that?" (one of a couple)
"I <u>think</u> it's a Pika." (other person)

In total, three of the four measurable objectives are successfully met and/or surpassed.

The conclusions about Pod A can be summarized as follows:

- It is not attracting enough visitors to successfully meet the objective.

- Pod A proves quite interesting to those who stop at it.

- The exhibit is successful in communicating information about plant and animal life in the alpine tundra.

- The objective about why The Whistlers is in the National Park is considered successfully met.

- The layout of the boardwalk and the position of Pod A on the boardwalk allow many people to pass by Pod A at such a distance that they are not exposed to the text and pictorial representations.

- The drawings of wildlife on the pod confuse people because the real-life relative sizes are not reflected in the pictorial representations, and there are no names accompanying the plant and animal life shown.

3.4 Recommendations

- Change the wording in the text to more strongly and clearly emphasize the reason The Whistlers is in a National Park.

- Re-route pedestrian traffic on the boardwalk to encourage more people to walk by Pod A at a closer distance. This would best be accomplished by changing the layout of the boardwalk.

- Either change the pictorial representation representations of wildlife so that their sizes reflect the actual relative sizes in real life, or add brief

descriptive information below each so people can more easily distinguish among the various types of wildlife (ie. average length, weight, height, colour, etc.). This recommendation and the following one apply to all media which have pictorial representations of plant or animal life.

- Captions should be added to identify each plant and animal illustrated.

4.0 Pod B ("What's Missing Here? and "Tough Times" - boardwalk)

4.1 Description

Pod B describes the living conditions in the alpine tundra as well as explains some of the reasons why the conditions are so difficult. The exhibit combines text on a full and a half hexagonal shapes with two hexagonal pictorial representations.

As with Pod A, people exiting either the terminal building or the tram cars, and following the boardwalk in a counter-clockwise direction toward the trail will pass by Pod B. Also, anyone coming from the trail and walking clockwise on the boardwalk will pass Pod B.

4.2 Findings

Measurable Objectives	Results	Knowledge Gain
Of those who read Pod B,		
- 75% will know conditions in the alpine tundra are harsh	78 ±10%	40%
- 75% will know one natural feature which makes living conditions in the tundra difficult	91 ±7%	8%
- sign stopping power: 60%	30 ±5%	N/A
- sign holding power: 1.0	0.81	N/A

4.3 Discussion and Conclusions

It is very evident that the cognitive objectives related to Pod B are being met beyond the criteria determined for them. The most effective message is the one which describes the conditions in the alpine tundra: the 78% result reflects a 40% knowledge gain. The description of the factors contributing to the difficult conditions also contributes to a knowledge gain (8%). The fact that the gain is not substantial is not as much a reflection of Pod B as it is an indication of the knowledge people have already attained, whether through getting a brief taste of conditions during their visit, or by rationally thinking about what would be likely to contribute to "tough times" in the alpine tundra. When people already have a high level of knowledge, it is more difficult to increase it. This shows that the sign accomplishes very little, and perhaps the information should have been presented in more detail.

Pod B falls quite short of the 60% stopping power objective. Pod B suffers from the position it takes between the first and fourth pods. A comparison of the stopping powers for the four pods bears this out.

Pod A (the first as visitors head away from the terminal building) attracts 45% of those who pass by; Pod B (the second), 30%; Pod C (third), 35%; and Pod D (fourth), 57%. This pattern is not unique to these pods. There seems to be a general tendency for people to stop at the first of some number of similar objects, or the last, more often than at those in the middle. A similar phenomenon seems to occur in many unrelated situations, such as job interviews: those near the beginning and the end of the interview schedule are likely to be remembered most.

Thus, there is less of a tendency for people to stop at Pod B simply because of its relative position among the other pods - a factor unrelated to the pod itself. How much of an influence this factor is cannot be determined from these results. It is reasonable to assume that it would not likely contribute to all of the shortcoming. Factors related to Pod B which influence its stopping power are difficult to assess. There is nothing about the exhibit which would suggest any problem with either the text, the pictorial representations, or any design aspects.

(This issue of layout of the pods is discussed in the Conclusions section at the end of the report.)

Results show people do not spend the time necessary at Pod B to read the text completely, though the result is only .19 off the mark. If they are devoting all of their time to the text, then they do not quite finish reading it. If they view the pictorial representations at all, then they are devoting even less time to the textual information.

It is quite possible that the effect mentioned above (more of a tendency to pause at first and last objects) also has an effect on a certain proportion of those who stop at Pod B. They might stop but feel somewhat inclined to move on, and do not completely read the sign. Alternatively, perhaps the text and graphics are not captivating enough to hold visitors' attention. If this is the case, there is nothing evident about either the text or the graphics which this lack of appeal could be attributed to. Other than these possibilities, there are no apparent reasons why people do not spend sufficient time at Pod B to completely read the text.

In total, two of the four measurable objectives are successfully met.

The conclusions about Pod B can be summarized as follows:

- It is very successful in fulfilling its cognitive objectives beyond the criteria set as a measure of performance.

- It falls short of the objective set for stopping or attracting people, though this is, to some degree, due to its relative position among other pods. Thus, visitors miss the information presented in the pod.

- People do not read all of the text on Pod B.

4.4 Recommendations

- Change the position of Pod B so that any kind of "order" or "serial" effect will be minimized.

This applies to the arrangement of the other pods as well. Currently, all four pods occupy space on less than one-half of the boardwalk. If they were more evenly distributed about the boardwalk, there would be a tendency for more of those who approach the (currently) central pods to stop at them, since any negative "order" effect would be diminished. (This is further discussed in the Conclusions section.)

- Pre-test the layout of future pods, if at all possible.

- Emphasize the important points in the text of Pod B by using bolder typeface. This will draw attention to the vital parts of the communication, should people not read the entire sign.

5.0 Pod C ("The Whistler," "The Long Haul," and "The Short Term" - boardwalk)

5.1 Description

Pod C describes life in the alpine tundra, and notes the names of various plants and animals which inhabit the area. It describes how they adapt to conditions and how the animals prepare themselves for winter. Pod C is the third of four pods people pass when they walk around the boardwalk in a counter-clockwise direction as they leave the tram cars and the upper terminal building at The Whistlers.

5.2 Findings

Measurable Objectives	Results	Knowledge Gain
Of the visitors who read Pod C,		
- 75% will be able to name at least one plant found in the (alpine) tundra	73 ±17%	29%
- 75% will be able to name at least one animal found in the (alpine) tundra	92 ±10%	14%
- 75% will know the mountain is named after the hoary marmot	89 ±12%	43%
- 50% will be able to name one way a plant or animal has adapted to winter conditions in the (alpine) tundra	96 ±7%	26%
- 50% will know one way a plant or animal has adapted to a harsh environment	62 ±19%	53%
- sign stopping power: 60%	35 ±6%	N/A
- sign holding power: 1.0	0.64	N/A

5.3 Discussion and Conclusions

Pod C technically falls short of the first objective listed above. However, the confidence interval captures the 75% objective, and Pod C is considered successful in this respect. Further evidence of this success is the 29% knowledge gain.

As the results indicate, all the rest of the cognitive objectives are achieved and exceeded far beyond the set criteria. The most noticeable knowledge gain is that corresponding to how plants and animals adapt to the harsh environment. There are sizeable gains for all of the objectives, and the fact that an overwhelming majority of visitors know the information attests to the success of Pod C. The fact that the text is about something which is likely interesting to visitors - animal and plant life in an area such as the alpine tundra - likely contributes to this success. People are more likely to "digest" information if they are interested in it. As well, the drawings which they can refer to while reading the text serve to reinforce what they are learning.

The weaknesses of Pod C appear to be the stopping and holding power of the exhibit. Only 35% of those walking by stop at Pod C, and those who do stop do not stay long enough to read the text completely. As in the case of Pod B, Pod C also suffers from being between the first and last pods on the boardwalk. People are not as inclined to stop at those pods in the middle (compare the stopping powers of the four pods). This factor may also be influencing the amount of time people are willing to spend at Pod C.

Five of the seven measurable objectives are successfully achieved.

The conclusions can be summarized as follows:

- Pod C is highly successful in meeting (and exceeding) all of the cognitive objectives.

- It does not attract a sufficient proportion of people to meet the stopping power objective, likely because of its relative position among the other pods.

- People do not spend enough time at Pod C to completely read the text.

5.4 Recommendations

- Re-locate the position of Pod C relative to the other pods so that any "order" effect is minimized.

6.0 Pod D ("To The Summit!" - boardwalk)

6.1 Description

Pod D encourages visitors to hike up to the summit from the upper terminal. It also advises them of what might happen to plant or animal life in the tundra if the animals are fed or the rocks covering the topsoil are removed. The text is on one hexagonal sign, while the other two hexagons display a map of the trail up to the summit with related information.

Anyone going on or off the boardwalk using the stairs (there are two exits from the boardwalk) will pass by Pod D.

6.2 Findings

Measurable Objectives	Results	Knowledge Gain
Of those who read Pod D,		
- 75% will know there is a trail to the summit of The Whistlers mountain	96 ±7%	13%
- 75% will know that the hexagonal arrow sign is directional signage	46 ±19%	- 40%
- 75% will know they should not feed wildlife	82 ±14%	39%
- 75% will know they should not move rocks.	79 ±15%	32%
- sign stopping power: 60%	57 ±6%	N/A
- sign holding power: 1.0	2.1	N/A

6.3 Discussion and Conclusions

While the formal criterion of 60% for stopping power is not met, the confidence interval includes this goal, and Pod D is considered successful in interesting people. Pod D enjoys the highest stopping power of all the pods. A large part of this success is the position of Pod D on the boardwalk. It is the last of four pods which people pass. There is a tendency for people to stop at the first and last pods. The added advantage for Pod D is that it is situated at a point where the flow of people tends to slow down. This is the result of two factors. First, the "people flow" from two directions converges where Pod D is located. When there are a large number of visitors on the boardwalk, this results in people "grouping" in the area of the pod, slowing traffic down. Second, people going from or coming to the boardwalk, tend to slow down to use the stairs immediately to one side of Pod D. The map shown on the pod is a definite strength in attracting people also.

The map, and also the drawings and text are also responsible for holding peoples attention. Visitors stay at the pod for for more than twice the time required to read the text. Pod D is very successful in this respect.

Pod D successfully communicates three of the four intended messages, as shown by the results. While almost everyone (96%) knew about the trail to the summit of The Whistlers, the results show that 83% knew this before reading, or looking at, Pod D. The 13% contribution of the pod is marginal. The conclusion is that the pod is not very effective. This effectiveness, of course, is defined by the content of the measurable objective: to know that there is a trail leading to the summit. This is information that visitors pick up from a variety of sources, most notably from the tram car operators commentary on the way up. This suggests that the content of the measurable objective be reconsidered. Perhaps asking more specific information about the trail up to the summit would be a better measure of the effectiveness of Pod D.

Pod D is very successful in communicating the messages that visitors should know not to feed the wildlife or move the rocks. The pod contributes 39% and 32%, respectively, to this knowledge. The messages are presented in a straightforward and direct manner, yet in a way which appeals to a visitor's appreciation of the area. The text is a definite strength of Pod D. (It is also the authors' opinion that by explaining what effect visitors behaviour <u>can</u> have, more will be likely to not feed the animals or move the rocks. This is a strength of these messages on a number of the media.)

Results indicate a definite problem in communicating that the hexagonal arrow is directional signage. Only 46% of the visitors who had looked at Pod D knew this. More disturbing, this represents a 40% <u>loss</u> in knowledge. The possibility of

interviewer bias was investigated. If different interviewers were accountable for the pre-test results were different from those who had conducted the post-test interviews, this might account for the peculiar results. Three individuals conducted all of the interviews. One person was responsible for 52% of the pre-test ones, as well as 68% of the post-test interviews - the majority in both cases. This was enough of an overlap to discount interviewer bias as a factor.

The apparently catastrophic results might be explained by discussing what visitors were reacting to when they were asked the question. Pre-test respondents were shown a hexagonal symbol with an arrow in it. There was no text. Post-test respondents, who had already looked at the pod, were recalling the symbol they had seen there. This symbol had the word "Summit" below the arrow, and text above the symbol read "Follow These Markers." Pre-test respondents tended to answer that the symbol meant "this way" or some other general directional comment. Post-test respondents tended to answer that it meant "top of The Whistlers." When asked what it might mean if they saw the symbol at different points on the trail, they answered the same. In other words, the direction the symbol seems to convey to those who look at Pod D is "to the top." This is understandable, considering the symbol and text on the pod. However, an answer of only "to the top," even after several attempts by the interviewers to probe for another answer, was not considered correct. There are a number of these directional signs at The Whistlers, and they do not all lead to the top. If visitors mistakenly think so, they could end up wandering around on the trail for longer than they might want. This is the only plausible explanation for the results, although it is not a conclusive one. If this is the case, then removing the word "Summit" from the symbol on Pod D might help people think of the symbol as more generally directional. The word "Summit" could appear on all the signs on the trails which point in that direction, thus still directing people to the top.

In all, Pod D very successfully achieves five of the six measurable objectives.

The conclusions about Pod D can be summarized as follows:

- It is very successful in attracting and holding the attention of visitors.

- It is moderately successful in its communication.

- Strengths are the position of the pod on the boardwalk, the map and graphics, the directness and appeal of the text.

6.4 Recommendations

- Remove the word "Summit" from the symbol on the pod.

- Ensure that directional signs on the trail have text indicating where they are pointing to.

7.0 Trailhead B Sign ("The Whistlers Trail" - near boardwalk)

7.1 Description

The Trailhead B sign invites visitors to hike down The Whistlers mountain. It briefly describes the trail and advises hikers about the duration of the hike and to wear sturdy shoes.

The angled sign rests on a single post a short distance past the boardwalk, about three or four metres to the west of the trail leading to the summit. As with Pod D, anyone headed on or off the boardwalk using the stairs will pass the Trailhead B sign.

7.2 Findings

Measurable Objectives	Results	Knowledge Gain
Of those who read the Trailhead B sign,		
- 75% will know there is a trail which descends down the mountain	74 ±15%	67%
- 75% will know that it takes three hours to walk down the mountain	74 ±15%	72%
- sign stopping power: 40%	23 ±4%	N/A
- sign holding power: 1.0	1.0	N/A

7.3 Discussion and Conclusions

Though the criteria for the stopping power objective is a conservative 40%, only 23% stopped at the sign. The sign itself is quite small, and competes with other points in the landscape which people can view and pay attention to. It is also located at a distance from the trail to the summit which makes it less noticeable, considering its size. These factors contribute in putting the Trailhead B sign at a disadvantage in attracting visitors. It is not successful in this respect. Since all the counts were taken during fair to excellent weather conditions, there is no indication of whether or not trail conditions affect the stopping power.

The sign meets the established holding power objective. The sign is interesting enough for visitors to stop and completely read the text. The content is very likely interesting to visitors, so they stay at the sign long enough to finish reading it.

A mere 1% difference is all that technically stands in the way of the Trailhead B sign from meeting the two cognitive objectives. On this basis alone, one would have to conclude that the sign is successful. Considering that the confidence interval includes the criteria for the objectives, and that there are large gains in knowledge, the conclusion is that the sign is extremely successful. The message in the text is simple and straightforward. This contributes largely to the success.

In total, three of the four objectives are met.

The conclusions can be stated as follows:

- The Trailhead B sign is very successful. The information is highly specific to the sign, and the text presents the message in a clear, direct manner. As well, the content (about a trail down the mountainside) is likely of interest to visitors. These all contribute to the success of the sign.

- Because of its size and other "competition," the signs present location contributes to the low percentage of people who stop at the it.

7.4 Recommendations

- Locate the sign closer to the trail leading up to the summit of The Whistlers. Though close to this trail, it should be closest to the beginning of the trail leading down the mountain. This should increase the likelihood of more people stopping at and reading the Trailhead B sign.

8.0 Summit Locator (summit)

8.1 Description

The Summit Locator is a sun-dial-like device which can be used to point at and identify various mountains and peaks that hikers to the summit of The Whistlers can see. It is one of three media located at the very top of The Whistlers, and anyone who has walked the 1.4 kilometres up the hiking trail to get there cannot help but see it.

8.2 Findings

Measurable Objectives	Results	Knowledge Gain
Of those who use the Summit Locator,		
- 75% will be able to name at least two mountains	97 ±7%	N/A
- sign stopping power: 75%	84 ±6%	N/A
duration of use/person:	1 min., 12 sec.	

Note that because of the nature of use, holding power is not applicable in this case. There is no meaningful average time which use of the Summit Locator can be referenced to, hence the level of interest in this case is reflected not by a ratio, but by the length of time visitors to the summit of The Whistlers used the Locator.

8.3 Discussion and Conclusions

Results for stopping power show that the Summit Locator is quite popular, attracting 84% of those within sight of it. It is ideally situated, being one of two exhibits which come into view as visitors complete their hike up the trail to the summit.

As the results indicate, the performance of the Summit Locator far exceeds the criteria set in the measurable objectives. Almost everyone who uses the Summit Locator is able to point out and name at least two mountains. This is because the design of the Locator makes it virtually impossible not to be successful in locating mountain peaks. Someone using the Locator turns the indicator to point to some peak, then reads the name on the perimeter of the dial. The task of locating a peak this way is not the same as being asked to point to and name a peak after looking at a drawing of a view. Thus, it is suggested that different results for the task of locating points in the landscape not be compared to those for the Locator. That locating peaks is easy is a strength of the Locator. There are so many in the panoramic view that visitors would have an extremely difficult time trying to locate any of them by referring to a sketch of the view.

Observations during data collection indicate that the Locator is something which is enjoyed by virtually all who use it, judging by the enthusiasm displayed. Many people made comments which revealed that the somewhat unique design was something which aroused their curiosity and was a factor contributing to their use of the Locator. People enjoyed the activity of locating different peaks. The active participation which visitors can engage in at the Locator is a very strong point about the exhibit.

The average time spent using the Locator was one minute, 12 seconds, which seems to indicate again, in the authors opinion, that it is quite interesting to those who have hiked up to the summit. It is interesting to compare this time with time spent at other media. As one comparison, the average length of time spent at any pod on the boardwalk was one minute, 30 seconds. While the pods do not offer visitors the same kind of activity, those reading the pods virtually always looked at the drawings and sketches on them. It seems involvement, in whatever way, holds the attention of visitors.

Both of the measurable objectives are met very successfully.

Conclusions about the Summit Locator can be summarized as follows:

- It is very successful in aiding people to name and locate mountains in the landscape. A strength is that it is easy to use.

- It is quite appealing to Park visitors.

- The location is optimum for attracting people to use it.

- The design (similar to a sun-dial) is also a positive factor in attracting people to the Summit Locator, and making it easy to use.

- It is an exhibit which visitors can very actively use, and this is an important strength. Activity promotes faster, more thorough learning, as well as longer retention of what is learned. The design is very successful.

8.4 Recommendations

- None

9.0 Register (summit)

9.1 Description

The Register located at the summit of The Whistlers stands approximately one and one-half metres high, is hexagonal in shape, with the windowed upper surface slanted toward anyone standing in front of it. A visitor is able to read a brief text congratulating him or her on the ascent and noting why recording the achievement is a tradition among mountaineers. A person can insert one arm through a small hole in the outer shell, and, on forms inside, record the date, their name, home address, and write a brief comment.

The Register is the first of three exhibits which comes to view as one is completing the final rise to the summit. It is noticeable to virtually everyone who follows the trail to the top.

9.2 Findings

Measurable Objectives		Results	Knowledge Gain
- register stopping power:	75%	77 ±6%	N/A
- register holding power:	1.0	1.7	N/A

9.3 Discussion and Conclusions

As the results show, both objectives set for the Register are met beyond the established criteria. Based on observations and data collected, most people stop at the Register. Informal talks with people suggest that many feel a sense of accomplishment in reaching the summit and are proud to record it. Often their climb is something they will not likely repeat in the near future, and many expressed an exhilaration and awe similar to what one imagines true mountaineers experience. The conclusions about the Register are obvious. In addition, it is the author's opinion after observing and talking with people, that the Register is a most useful and appreciated exhibit to have at The Whistlers summit.

9.4 Recommendations

- Include a supply of sharpened pencils in the Register.

10.0 Trail's End Sign ("Trails End" - summit)

10.1 Description

The Trail's End sign is located at the formal end of the trail leading from the upper terminal of the tram to The Whistlers summit. It announces the official end of the trail and notes what is required should one want to hike further. There is a path which has been worn by hikers continuing past the Trail's End sign, and a wide open area for those intending to carry on further.

The sign is a small, angled one resting on a single post. Though small, it is quite noticeable, since there is virtually flat ground and nothing else around it. It is easily seen by anyone approaching either the Locator or the Register. From various angles, the light reflecting from the golden background of the sign makes it very eye-catching during sunny periods.

10.2 Findings

Measurable Objectives	Results	Knowledge Gain
Of those who read the Trail's End sign,		
- 90% will know they have reached the end of the trail	62 ±21%	54%
- 75% will know they have to be properly equipped to continue	91 ±13%	35%
- sign stopping power: 90%	63 ±7%	N/A
- sign holding power: 1.0	0.95	N/A

10.3 Discussion and Conclusions

The stopping power of the sign is 27% short of the 90% objective. This is surprising, in part, because the sign is highly visible from a large surrounding area at the summit. The sign stands out because the area is quite flat, and nothing competes with it. As well, the metal background contributes to visibility, especially when it reflects the sun.

One factor which partially explains the problem is that those arriving at the summit arrive at the Summit Locator and Register first. At some distance from these rests the Trail's End sign. Those eager to explore the area may use the Register and Locator, since they have arrived at them. They might not want to walk the extra distance to the Trail's End sign but rather continue on their exploration of the area. This would particularly be the case in inclement weather, when people would likely be in more of a hurry to return to the terminal building. (Note that 64% of the Stop counts were done during inclement weather.)

A comparative look at the results lends support to this. Both the Register and Summit Locator have stopping powers higher than that of the Trail's End sign: 84% and 77%, respectively.

The holding power of the Trail's End sign is just .05 below the 1.0 objective. This difference is so small that even though formally the objective is not met, it can be considered to be achieved for all intents and purposes.

The Trail's End sign falls short of the 90% objective for people knowing they have reached the end of the trail, by 28%. This apparent failure to reach the objective has <u>far less</u> to do with the sign than it does with the path extending beyond the sign.

Ambitious hikers have worn a path close to a ridge extending beyond the Trail's End sign. Though less defined, the path is similar to the one subsequent hikers journey on to get to the summit. When respondents were asked "Where does this trail end?," many glanced at the unofficial trail beyond and responded (in effect), "Somewhere over there." (pointing toward ridge), or "I don't know, I haven't been to the end" (gesturing towards area beyond the sign). The contradiction between what they saw and what the Trail's End sign read was resolved by accepting what was to them, a trail extending beyond the sign they had just read. Consequently, the fact that the achieved result does not reach the set objective should not cause concern.

What should cause concern is that the message in the text is inappropriate, considering the location of the sign. A change in wording or relocation of the sign would be solutions to this problem.

Far more indicative of the effectiveness of the Trail's End sign is the knowledge gain. The 62% result reflects a gain in knowledge of 54%.

The sign far surpasses the objective for communicating what people should be equipped with if they decide to hike further. The overwhelming majority of people interviewed (91%) knew what they should have to continue on. This shows a 35% knowledge gain.

In summary, two of the four objectives are successfully met.

The conclusions about the Trail's End sign can be summarized as follows:

- The location is somewhat disadvantageous for attracting people to the sign, since visitors tend to stop at the Register and Locator first, and might not want to stop at a third exhibit, especially if it involves further walking and the weather is poor.

- The location of the sign (combined with the wording) contributes to some confusion about where the trail actually ends, due to the worn path extending beyond.

- The sign successfully communicates what people should be equipped with if they wish to hike further.

- All considered, a reasonable conclusion is that the sign is marginally successful.

10.4 Recommendations

- If it is important that a greater percentage of people read the sign, then its location should be changed so it is situated closer to the Register and Summit Locator. This would increase the likelihood of more people stopping at the Trail's End sign, since all exhibits would then be in the same vicinity.

Note that the implementation of this would require a change in wording, since there would be an official (and distinct) trail beyond the point where the sign was moved to. One suggestion is wording something like "There is no official trail beyond this immediate area," or other words to that effect. If the sign is moved without a change in wording, then the message about the end of the trail will likely be somewhat confusing, although more people will pick up information about being suitably prepared for hiking further.

- If a clear communication about the end of the trail is more important than increasing the stopping power of the sign, then it should remain where it is.

- Change the wording of the sign to read "Beyond this point there is no official trail," rather than "...distinct trail." The worn path is very distinct. This change in wording would help people recognize the official end of the trail. (This recommendation is made assuming there is no location change.)

11.0 Tracking

11.1 Description

Part of the evaluation study of The Whistlers was to observe visitors' behaviour as they walked about the area of the upper terminal building. The purpose of tracking visitors was to evaluate how much and in what ways visitors use what the site as a whole has to offer. This includes not only the boardwalk area behind the terminal building, but also all the hiking paths leading from the boardwalk. There are various paths visitors can take to see the area and to get to the summit, if they choose to do so.

An observer chose the third individual, who stepped out of a tram car, and tracked this persons movements. If the individual was with other people, then the group as a whole was tracked. In the event the group split up, the observer tracked everyone as much as possible, but gave priority to the individual originally selected. The numbers of individuals using certain paths, and moving in certain directions were counted, and the numbers reaching various points were noted. The results presented are based on the total number of people tracked, not solely on the one individual or group chosen. A total of 44 groups were tracked, accounting for observations and counts on 132 people.

11.2 Findings

Measurable Objectives	Results
Of the visitors to the Upper Terminal,	
- 75% will use at least part of the boardwalk	100%
- 75% will follow a counter-clockwise path around the boardwalk	52 ±9%
- 50% will continue past the boardwalk	71 ±8%
Of those continuing past,	
- 90% will use the stairs to get off the boardwalk	74 ±9%
Of the people walking up the trail,	
- 75% will use switchbacks	38 ±12%
- 50% will reach the first summit	73 ±11%
- .5% will take the trail down the mountain	0% (none were observed)

Figure 3 presents a detailed flow of visitors on the boardwalk, taking into account the total flow as much as possible. The percentages shown in parentheses by the title of each medium represent the total proportion of people passing by, regardless of direction.

Figure 4 shows the flow of visitors as they move away (towards the trail and summit) from the upper terminal area of The Whistlers. The circled numbers indicate various destination points along the trails. Note that the percentages shown are based on the total number of people tracked over the course of the study. Thus, the

FIGURE 3

VISITOR MOVEMENT ON THE WHISTLERS BOARDWALK

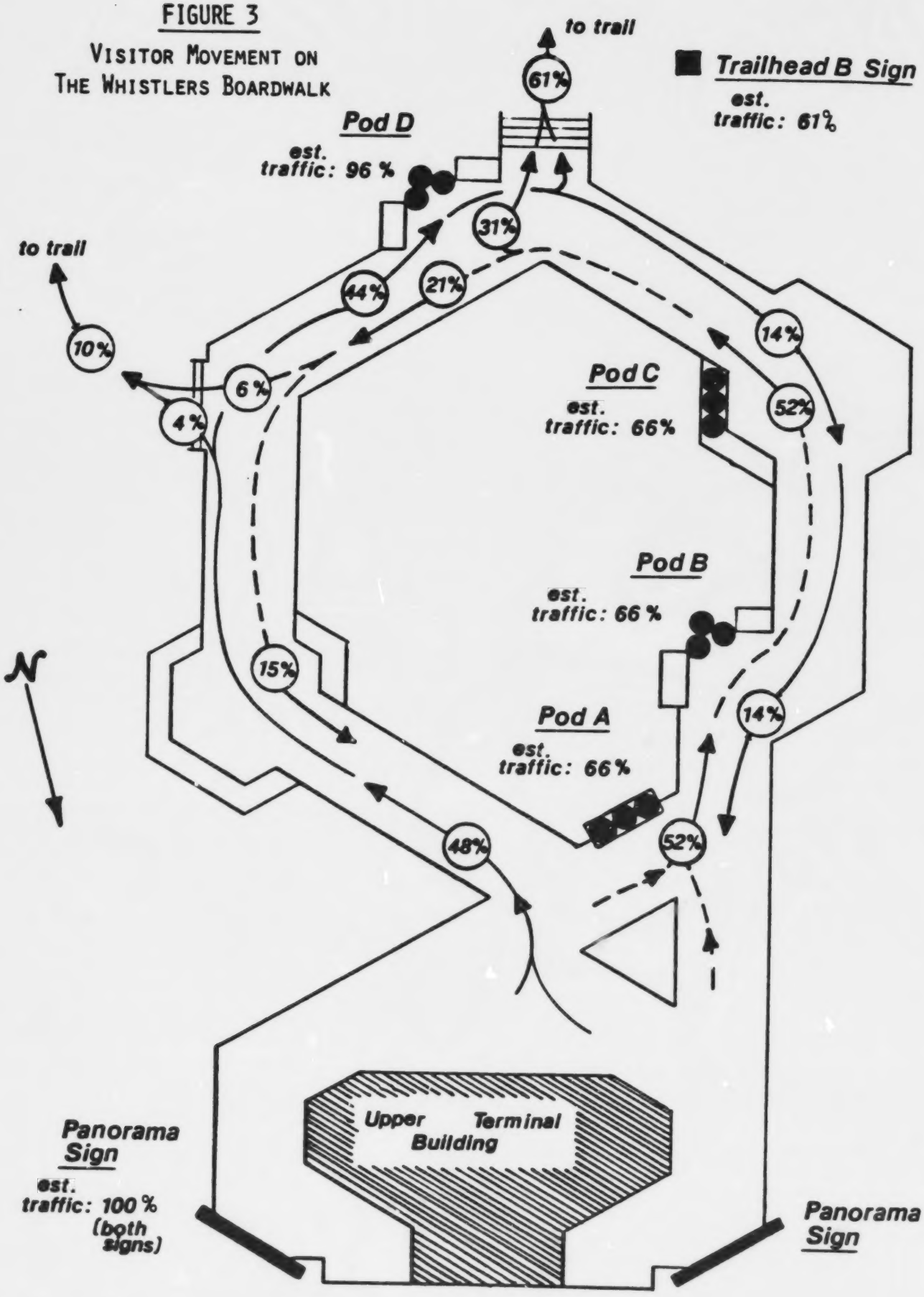
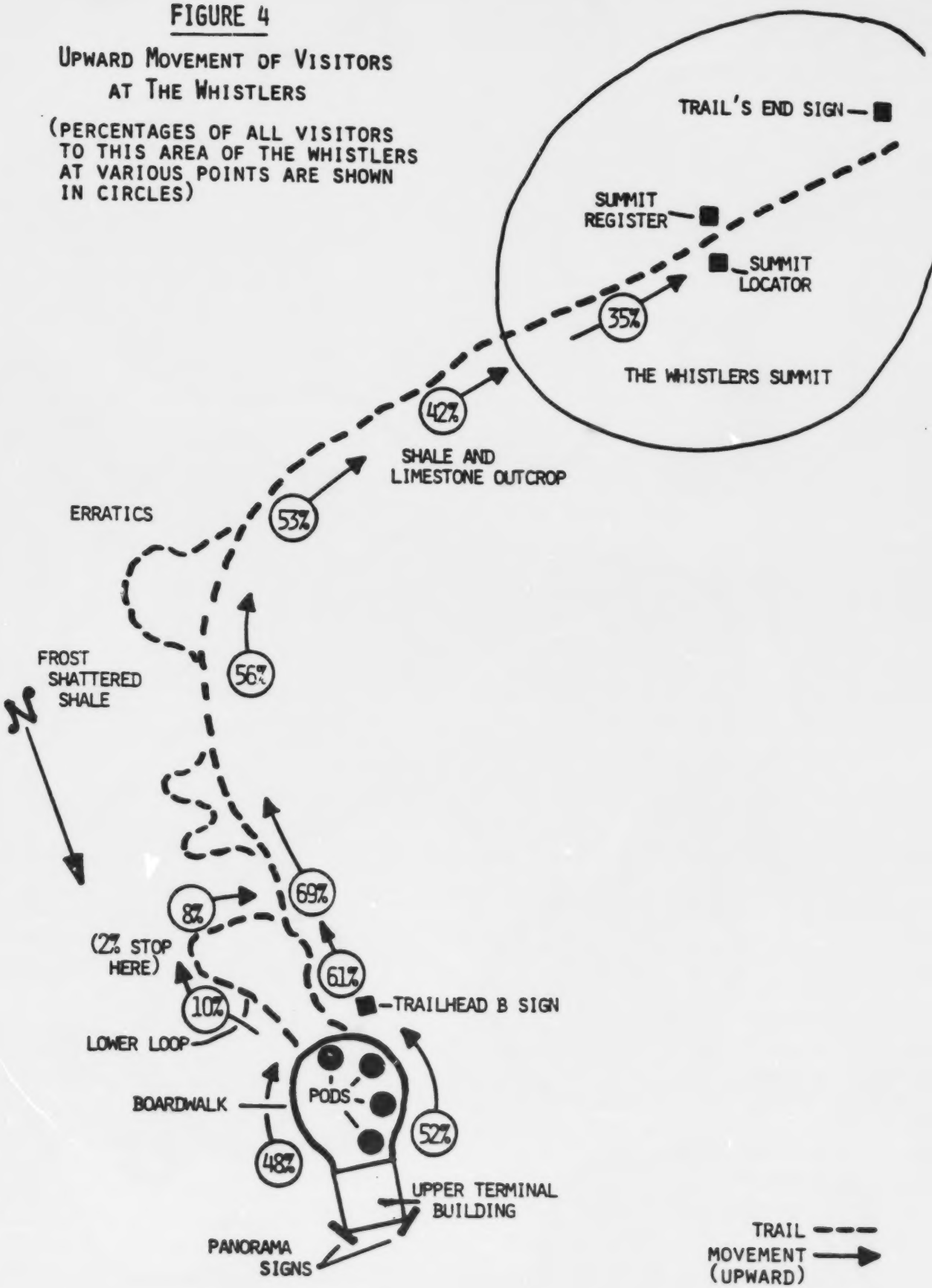


FIGURE 4

UPWARD MOVEMENT OF VISITORS AT THE WHISTLERS

(PERCENTAGES OF ALL VISITORS TO THIS AREA OF THE WHISTLERS AT VARIOUS POINTS ARE SHOWN IN CIRCLES)



results for some of the objectives presented above cannot be seen directly from Figure 4, but must be calculated. (For instance, "Of those continuing past the boardwalk, 90% will take the stairs" meant basing the calculation on the 71% (61% + 10%) of those continuing past the boardwalk.) Also note that the flow is "uphill", or away from the terminal building only.

In the conclusions section of the report, the visitor flow as presented in Figures 3 and 4, is combined with the stopping powers of the media in order to estimate the percentages of people using the media at The Whistlers.

11.3 Discussion and Conclusions

Boardwalk

The objective for use of the boardwalk is met and very successfully surpassed. All of those tracked made some use of the boardwalk, exceeding the objective by 25%. Seventy-five percent used some of the boardwalk, and the remaining 25% used all, or most, of it.

While the majority (52%) followed a counter-clockwise path, this falls far short of the objective. The implication of this might be that fewer people than desired will pass by the pods - particularly Pods B and C, and perhaps D. However, consider the clockwise flow of people. As Figure 3 shows, of the 48% going clockwise, 4% exited the boardwalk before reaching any of the pods, leaving 44% to reach Pod D. Combining this with the 52% moving counterclockwise, means 96% of the visitors passed by Pod D. Still in a clockwise direction, 14% do not leave the boardwalk, but continue on past the pods. Thus, 52% plus 14% means 66% of the visitors pass by Pods C, B, and A. Also, due to the layout of the boardwalk, some (undetermined number) of those moving in a clockwise direction will have passed by Pod A at the outset of their walk. The 66% estimate for Pod A is consequently a conservative one.

Of those continuing past the boardwalk, 74% used the stairs to leave the boardwalk. While 74% is a sizeable majority, it is 16% short of the objective. The interpretation of this shortcoming is not completely clear without an understanding of the rationale for the objective (unavailable at the time of this writing). If the goal (of having 90% of visitors leave by the stairs) is to assess the percentage of people passing by Pod D, then the objective is met when the total flow of visitors on the boardwalk is considered. As Figure 3 shows, an estimated 96% of the visitors to The Whistlers pass by Pod D. Note, however, that this measure (percentage of people using the stairs) is an inaccurate indicator of the performance of Pod D, if indeed it was meant as such. It

underestimates by excluding those who do not leave the boardwalk. A more accurate indicator is the combination of statistics obtained by the flow of visitors at the upper terminal, and the stopping powers obtained for each of the media.

If the underlying rationale was to assess the physical use of the stairs, then the objective is not met, based on the results obtained from this study. Clearly in this case, the measure is more accurate, although it excludes the use by those returning from the trails.

With similar accuracy (underestimating by excluding those returning from the trail), the measure is one indicator of the percentage of people passing by the Trailhead B sign.

Taking the Trail Up

Results suggest the trail is far more popular than expected. Of those tracked, 71% went farther than the boardwalk. These people tended to not use the switchbacks, but rather go straight towards the summit (the more difficult way), or to take the path with the view to the east. Only 38% used the switchbacks. Well over the 50% of those taking the trail up reached the first summit: 71% reached the point or went further on. None of the people tracked took the trail down the mountain.

That the switchbacks are not being used as much as was expected might suggest that they "are not worth it." The switchbacks serve a very useful purpose, even if the objective is not met. They allow those with less stamina to take an easier route to the top, still affording them the opportunity to reach the summit. Considering 38% took the switchbacks, they seem a reasonably successful aspect of the trail. After all, maybe the 62% who didn't were in such good physical shape that they took the tougher challenge - no reflection on the usefulness of the switchbacks.

While the above statement was made "tongue-in-cheek," the results for trip destination may support this notion: 71% (of those continuing past the boardwalk) made it either to, or past, the first summit. This is 21% more than expected. Thus more people are going farther, and more are using a route up without the easier switchbacks.

None of the people tracked took the trail down the mountain. Considering the objective was less than 1%, this cannot be considered in any way as non-use of the trail. What it does indicate is that the criterion for the objective is very realistic.

In total, three of the seven objectives are met.

In summary, it seems most of the visitors to The Whistlers make good use of the boardwalk and the trails. The visitor movement on the boardwalk indicates more people could be encouraged to pass by some of the pods.

11.4 Recommendations

- Redirect visitor movement to encourage more to walk around the boardwalk counter-clockwise. The only suggestion is to change the layout of the boardwalk. Removing part of the walk could channel people at least to Pod A, regardless of which side of the terminal building they came out from. Further changes to one of the middle pods (putting either Pod B or C on the clockwise path) would likely increase the number of people exposed to that pod, if the percentages of people were found to be equivalent. Future study is needed before any of the pods are moved.

12.0 Hike Preparatory Sign ("The Whistlers Trail" - lower trailhead)

12.1 Description

The Hike Preparatory sign is located at the beginning of the hiking trail which leads to the upper terminal of the tram. There is a drawing of the mountain and the trail up it, with various points and elevations marked on it. The sign encourages people to hike up the mountain, and displays a table with the distance, walking time, and elevation gain for each of three destinations. It also advises to wear sturdy shoes and to bring water along.

This small angled sign rests on a single post about a metre from the trail. It is easily seen by anyone preparing to hike up the trail. When the light reflects off the golden background of the sign, it is very noticeable, even from the far end of the parking lot where hikers can leave their vehicles.

12.2 Findings

Measurable Objectives	Results	Knowledge Gain
Of those who read the hike preparatory sign,		
- 100% will know that the trail leads to the upper terminal	100%	32%
- sign stopping power: 75%	92 ±15%	N/A
- sign holding power: 1.0	1.6	N/A

12.3 Discussion and Conclusions

As the results show, the sign attracts more than enough visitors to succeed in meeting the objective. A major strength is the location of the sign. Anyone going up the trail will pass very closely by it. Also, at this close distance, a mere glance will reveal some detail about the hike up the mountain, displayed in the drawing of the mountain. This very likely contributes to attracting attention.

The sign proves interesting enough to hold the attention of people much longer than is required to simply read the text. Again, the drawing and the table format of hiking distances contribute to this success.

The Hike Preparatory sign clearly conveys where the trail leads to. While many people (87%) knew, or correctly guessed, the right answer, the objective is achieved and the sign contributed 13% to this knowledge.

An added comment about the Hike Preparatory sign is that only a small percentage of the visitors to The Whistlers ever read the sign. Because it is located at a site away from the mainstream of visitors, not many have a chance to read it. There is virtually nothing to be done about this, except to encourage more people to hike up the trail to The Whistlers.

The site itself should have some waste receptacles. On several occasions, garbage had been left near the support of the sign. Presumably, since the garbage had been left all in one place where it would be easily noticed, visitors needed a place to put it. They had not just irresponsibly littered.

All three measurable objectives are met.

The conclusions can be summarized as follows:

- The Hike Preparatory sign is very successful. The table format, the drawing of the mountain, and the location are all strengths of the sign.

12.4 Recommendations

- Provide waste receptacles somewhere in the vicinity of the beginning of the trail.

13.0 The Whistlers General Questionnaire

13.1 Description

Since life in the alpine tundra is as delicate as it is, it is important that visitors to the area be aware of the effects they might have on the environment. They can acquire appropriate information during the tram ride up (the operators make a brief presentation), or by reading the lower terminal preparatory signs, the panorama signs, or the text on Pod D.

The purpose of this general questionnaire was to evaluate how much of a "core" knowledge visitors were picking up from the media. The information is considered as "core" because the messages are central to the theme of the interpretive media at The Whistlers and, as such, are presented on various media. Pre-test respondents were interviewed at the lower terminal, before they had a chance to read any of the media. Post-test respondents were interviewed at the end of the boardwalk farthest away from the terminal building. Thus, they had a chance to look at the media.

13.2 Findings

Measurable Objectives	Results	Knowledge Gain
- 100% of the visitors to the upper terminal will know they are in an alpine tundra life zone.	57 ±18%	26%
Of those who ride the tram to the upper terminal,		
- 80% will know they must stay on the trail	71 ±17%	18%
- 80% will know they must not feed the wildlife	68 ±17%	30%
- 80% will know they must not pick plants or remove rocks.	68 ±17%	- 10%

13.3 Discussion and Conclusions

The results clearly show that far fewer visitors know they are in the alpine tundra life zone than was expected. Only 57% knew this - 43% short of the objective. People had difficulty recalling the specific term "alpine tundra." Many answered that they were at "the top," "The Whistlers," "the summit," and so on. Evidently the message is not being communicated strongly enough, even though the media did contribute 26% to the knowledge. People tend to think of the obvious, or the well-known (the name "The Whistlers"). Perhaps it is because of the terminology. Messages about the alpine tundra should stress the term more. As well, a separate sign or signs, clearly and directly telling people that the area is alpine tundra, would also help.

(This result is an important one, since the theme of The Whistlers is to interpret life in the alpine tundra. This finding is presented again in the conclusions section.)

Although a large majority of people did know the information relevant to the remaining three objectives, results are short of the criteria by about 10% in all cases. Because the results are close to the criteria (within the confidence limits), the media can be considered reasonably successful.

The results show that the media contribute most to the knowledge of not to feed the wildlife. Perhaps this message is stressed more often in the media, or by the tram car operators. The media contribute a modest 18% to knowledge that visitors should stay on the trails. What is puzzling is the 10% loss in knowledge that plants should not be picked nor rocks removed.

An examination of the data showed that two people had been responsible for all the pre- and post-test results. One individual conducted all the pre-test interviews, and the other carried out all the post-test ones. Because interviewer bias is strongly suspected, the results for this objective cannot be included as an indication of media effectiveness.

In summary:

- While none of the objectives are formally met, the media can be considered successful in achieving two of the three (the fourth result was invalidated).

13.4 Recommendations

- Accent every instance of the term "alpine tundra" by using bold text on the media, or underlining the term.

- Perhaps add signs specifically emphasizing the name, and a brief description of the alpine tundra. If this recommendation is implemented, a suggested location for the sign(s) is near the lower terminal, where people line up for the tram ride up. (This assumes that there will be no conflict with other signs in the immediate area.)

14.0 The Whistlers Effective (General) Questionnaire

14.1 Description

Since most of the visitors to the upper terminal and the summit of The Whistlers use the tram and many have little experience hiking on mountains, it is important that they find the facilities and services suitable for their needs. As such, interviews at the upper terminal area were conducted with visitors to The Whistlers to find out what their opinions of the services and facilities were. There were no pre-test nor post-test interviews involving this questionnaire.

14.2 Findings

Measurable Objectives	Results	Knowledge Gain
Of the visitors to the upper terminal of the tram,		
- 75% will find the bench facilities on the trail adequate	75 ±12%	N/A
- 75% will find the tram and terminal facilities adequate	100%	N/A
- 90% will feel that the tram is safe	92 ±8%	N/A

Slightly over 56% thought that their clothing and shoes were adequate for their journey on The Whistlers. Of those who mentioned what they thought they needed in addition to what they had, 50% mentioned warm clothing and the rest mentioned sturdy footwear.

14.3 Discussion and Conclusions

People clearly feel that the tram ride is safe. Those that expressed different views often referenced their comments by saying they usually become somewhat frightened when taking cable cars and the like. In other words, they did not really feel the tram was unsafe. As one respondent put it, "I wouldn't be up here if I really thought it was unsafe."

Virtually all of the visitors interviewed had a very high regard for the tram and terminal facilities. The 75% objective was surpassed by 25%.

Of those who had ventured out on the trail behind the upper terminal building, 75% thought there were enough bench facilities on the trail. Many commented that there certainly was no need for more benches, as the large rocks in the area provided more than enough places to sit. Other comments indicated people thought too many benches would somehow detract from the natural aspect of the area. Some of those who thought there should be more benches said it would be most useful for the elderly.

That only 56% of visitors to the upper terminal thought their clothing and shoes were adequate, indicates that messages about being prepared to go to the top of The Whistlers are not being communicated. Perhaps this is not expressed strongly or directly enough. The only chance visitors have to be forewarned is at the lower terminal. The Preparatory signs there tell people what they should bring with them when they go to the top. These signs are the only chance the media have of conveying a very important message. It is important that they be made as effective as possible (see the specific Results section for the Parking Lot Preparatory signs).

The conclusions are that the services and facilities at The Whistlers are regarded very highly by visitors.

14.4 Recommendations

- Implement the recommendations for the Parking Lot Preparatory signs.

F. CONCLUSIONS

Conclusions about the effectiveness of the media at The Whistlers first need a context, a meaningful framework, in which to be considered. This context is how much use visitors make of the various signs and exhibits. The results for tracking (previously presented) indicate the percentages of people passing by various media. This visitor flow can be combined with the stopping power results to give estimations of what percentages of all visitors to The Whistlers make use of the media.

For instance, 52% of the visitors took a counter-clockwise path around the boardwalk, leading them past Pod B. The rest (48%) moved clockwise. Some of these people, however, did not exit the boardwalk, but kept moving in a clockwise direction, leading them past Pod B also. (Fourteen percent of all visitors passed by Pod B even though they had taken a clockwise direction.) In all, then, 66% passed by Pod B. The stopping power of Pod B is 30% - of all people passing by the pod, 30% will stop. Thus, 30% of 66% equals the percentage of <u>all</u> visitors to The Whistlers who use (attend to) Pod B: 20%.

The derived figures for each of the media are presented below. The estimated percentages for the Parking Lot Preparatory signs, and the Panorama signs are simply the stopping powers, as virtually everyone passes by these signs when they visit The Whistlers. The estimate for the Hike Preparatory sign assumes approximately one percent of the visitors hike up The Whistlers (as per the planning report).

Sign/Exhibit	Percent of Visitors to The Whistlers Making Use of Media
Parking Lot Preparatory Signs	27%
Panorama Signs	39%
Pod A	30%
Pod B	20%
Pod C	23%
Pod D	63%
Trailhead B Sign	14%
Summit Locator	29%
Register	27%
Trails End Sign	22%
Hike Preparatory Sign	1%

The above percentages give an indication of use of the different media. The figures can be averaged for an indication of use per media. Any one of the media was used by an estimated 27% of the visitors to The Whistlers, on the average.
Careful attention must be paid to the interpretation of this figure to avoid misrepresenting media use. This is an average figure which includes low use, such as with the Hike Preparatory Sign, and high use, such as with Pod D. It is a statement about use based on independent figures from all of the media.
Care must be taken not to interpret this as meaning that 27% used all of the media (ie. stopped at and attended to, each sign and exhibit). A correct interpretation is that, on average, any one of the media was used by an estimated 27% of all visitors to The Whistlers.

Since the results from each sign and exhibit are independent of each other, no reasonable estimate of the percentage of visitors using all of the media can be made. (There is no way of knowing, for example, whether the one percent who stopped at the Hike Preparatory Sign also stopped at any of the other exhibits.)

The highest percentage shown above can be used as an estimate of the maximum percent of visitors using some of the media. Approximately 63% used some of the media at The Whistlers. This represents 32,130 visitors who attended to some of the media over the course of the study.

With the results of so many specific evaluations, it difficult to derive one absolute measure to use as an evaluation of The Whistlers media as a whole. In the context of this study, it is perhaps most meaningful to look at various sub-sections of the measurable objectives, and then to combine them all for one general summary figure.

The media evaluation can be broken down into three main components: (1) sign/exhibit interest; (2) information interest; and (3) cognitive achievement. First, the signs and exhibits had to be interesting enough to attract the attention of visitors. (The measure for this was sign or exhibit stopping power.) Second, the information and display of each exhibit had to be interesting enough to maintain the attention of those who stopped at it. (The measure for this was sign or exhibit holding power.) Third, and very dependent on the previous components, each sign was designed to convey information to people. (Results were compared to cognitive measurable objectives. Knowledge gains were also measured.)

The weakest aspect of the media is the attracting power of the signs: only four of the 11 (36%) of the stopping power objectives were met. In some cases (Parking Lot Preparatory signs, for example), the media are at a disadvantage in stopping people because they are not located where people naturally congregate or stop, but rather where people pass them by. In other cases (Trailhead B sign), there is competition from features in the landscape, and from people's eagerness to experience other aspects of The Whistlers. As well, in the case of the pods, those in the middle (Pods B and C), are less likely to stop people. This is not because of flaws or weaknesses with the pods, but rather seems to be because of a tendency for people not to stop as often at the middle of a number of objects.

Currently, the pods are situated on the west side of the boardwalk. The point above, about position being a disadvantage, is supported by the results: Pod A (closest to the terminal building) attracts 45% of those who approach; Pod B, 30%; Pod C, 35%; and Pod D (the fourth) 57%.

(These figures are not based on all visitors. They are based on those visitors who approach the media. Those who take different paths are not counted in these percentages. Therefore, the figures should not be compared to those on the diagram indicating visitor flow on the boardwalk. The figures in that diagram are based on all visitors. To clarify, while 30% of those who approach Pod B stop at it, only 66% of all visitors will approach the pod. The percentages in the visitor flow diagram

reflect both these figures: 30% of 66% equals 20%. The comparison of stopping power's, as presented above, does not take into account visitor flow, as this is not relevant to the relationship between position and stopping power.)

Note how the middle pods - B and C - stop smaller percentages of people than the two end pods. Still, considering that 66% of the visitors pass by Pods A, B, and C, and 96% pass by Pod D, the current position of the pods is very reasonable. If, however, approximately equivalent percentages of people travel clockwise and counter-clockwise around the boardwalk - then Pods B and C would benefit by being moved to the other (eastern) side of the boardwalk. There, they would not suffer from being "in the middle," and they would be exposed to the same percentage of people as the western side. A brief in-depth study of the traffic flow around the boardwalk should be conducted before deciding to move any of the pods. If some of the recommendations about redirecting traffic flow are implemented, then a study conducted after these changes is even more important before moving the pods. If many more people should use the western side of the boardwalk (where the pods presently are), then the advantage gained by moving pods B and/or C might be offset by the reduced exposure to people.

The interpretive media are successful in holding the attention of people: 60% of the ten holding power objectives were met. The content of the media, the drawings and graphics, and the interactive nature of the media contribute to this success. As well as being a measure of media performance, holding the attention of visitors is crucial to success in communicating the messages of the signs and exhibits - the cognitive objectives.

The media are very successfully communicating information about The Whistlers area to visitors. Of the 27 objectives related to acquiring knowledge, 85% were either met or exceeded. Another indication of the communication success is the amount that the media contributed to knowledge gain. There was an average gain in knowledge of 28% for each of the cognitive objectives. The highest knowledge gains were for specific information, whereas the gains for more general information were less. People often knew more general information before reading the signs, thus the signs contributed less to the overall general knowledge.

The most notable strengths, overall, are the "interactive" nature of many of the media (this promotes learning and retention), the graphics and drawings, and the straightforward messages in many of the texts. As well, it seems that when a sign or exhibit has a select few messages (as opposed to attempting to have too much information), the communication is more effective.

In summary:

- 36% of the objectives related to media stopping power were successfully achieved.
- 60% of the holding power objectives were met.
- 85% of the cognitive objectives were met or exceeded.

In total, 69% of all the set measurable objectives related to the media were either met or exceeded. (Note that the objectives related to tracking and the general questionnaires are not included here, since they do not reflect media effectiveness.) This summary figure leads to the conclusion that the media located at The Whistlers are highly successful.

Strengths

The success of The Whistlers interpretive media is the result of the individual successes of each of the signs and exhibits. Analyzing their individual strengths revealed a number of recurring aspects which indicate more general strengths of the media as a whole. These are summarized (in no particular order) as follows:

- The graphics are a definite strength of the media. The most evident example is Pod D which presents a map of the trail leading to the summit of The Whistlers. The stopping power of Pod D is the highest of all the media on the boardwalk, and this is a measure which is not dependent upon the position of a sign or exhibit relative to others. The map definitely enhances the stopping power in this case.

- The photographs and pictorial representations add a lot to the signs, and are considered a very positive aspect. This was something expressed by many visitors.

- The anodized aluminum backgrounds of the signs contribute to noticeability. Even on overcast days, light is reflected off the signs in such a manner as to draw attention to the presence of the signs.

- The "active" interest which many of the media attempt to elicit from visitors is a strength. It involves the reader with the landscape around him or her, and increases the chances the reader will pick up and retain the message presented. A very good example of this is the Summit Locator. Signs which require visitors to locate certain features are also an example.

Weaknesses

Though highly successful, media at The Whistlers do have some weaknesses which, if addressed, could only improve the already high level of success. As with the strengths, an analysis of the individual weaknesses revealed some general aspects which are summarized as follows:

- The general layout of the pods on the boardwalk seems to favour the first and last pods. Assuming equivalent percentages of people pass by all pods, rearranging the pods on the boardwalk would likely benefit those currently in the middle (Pods B and C).

- There is insufficient focus on important information using attention-drawing techniques. Material which is phrased strongly, is underlined, appears in heavy print, etc., is much more apt to be noticed. Important information should make use of some of these techniques.

- There is some inconsistency labelling and describing plant and animal life (they are not always labeled and/or described).

- Visitors experience some confusion when trying to identify drawings of animals and plants in real life. This is largely because the animals (and plants) are not shown according to scale. In other words, animals which in real life may be very different in size, are not shown this way in the drawings, making it difficult for visitors to identify them.

- Visitors do not know they are in the alpine tundra life zone. People had difficulty recalling the specific term "alpine tundra." They seem to think of the obvious, or the well-known - "the top," "The Whistlers" - rather than the specific term.

Since the underlying theme of the media at The Whistlers is "life in the alpine tundra" to visitors, it is thus assumed to be important that people know what alpine tundra is and why it is so special.

- In some cases, the messages are not forceful enough. The Parking Lot Preparatory signs are a good example of where important information about weather conditions and the need for warm clothing does not seem to have much of an effect. A number of visitors interviewed on the boardwalk, and especially at the summit, commented that they had read the signs, but had not taken the messages to heart for some reason. Thus, they were unprepared for the actual conditions they experienced. If important information is presented only once, then it must be presented emphatically and emphasized. This should minimize any problems with subtle

messages.

- Most of the media are not protected from either the elements or vandalism. There was evidence of vandalism on a number of the signs (initials and graffitti scratched on to the surfaces). Also, in many cases it was evident that the paint easily peeled off the metal supports of the signs.

Other

Conclusions listed here are not evaluative in nature. They do not reflect performance of the media, but rather observations which might be of use in other media projects, as well as media located at The Whistlers.

- The arrangement of a number of exhibits relative to each other can affect the percentage of people stopping at each exhibit. Assuming that the same number of people pass by a number of exhibits which are arranged in a serial order (such as the pods on the boardwalk), there is a tendency for more people to stop at the first and last few exhibits, and less of a tendency to stop at those in the middle.

- The presence of the media at The Whistlers is a facet of Jasper National Park which visitors enjoy and which contribute to an increased knowledge about not only the area, but some of the practices which are important to follow for all park visitors (for example, not to feed the animals or pick the flowers). In summary, the results of this study lead to the conclusion that the interpretive media at The Whistlers are very successful.

G. RECOMMENDATIONS

The Whistlers media are very successful as they stand. Their performance reveals underlying strengths rather than weaknesses. In keeping with this focus, the recommendations made in this section are intended to provide direction to further enhance the performance of the media at The Whistlers. The recommendations are based on the results and conclusions presented earlier.

The recommendations are organized into three sections: immediate, long term, and recommendations for future media projects. Immediate recommendations are those which could be carried out with a minimum of time and expense. Little, if any, design work is involved, and the signs and exhibits would not have to go "back to the shop" for modifications, at least for the most part. Long term recommendations are ones which take more time and clearly cost more. They involve sending many of the signs to be re-worked, and require more labour generally. Recommendations for future projects apply to other similar media projects which are in various stages of design and planning. Other media projects can benefit by the insights gained from this study of the media at The Whistlers.

Immediate Recommendations

Parking Lot Preparatory Signs

- Re-locate the signs so they are situated somewhere in the vicinity of people lined up to take the tram car to the upper terminal of The Whistlers.

Panorama Signs

- Change the text or otherwise more strongly emphasize (bolder type or underscoring) the messages that there are informative exhibits beyond the terminal building, and that the area above the tree line is called the alpine tundra.

Pod A

- Change the text to more strongly emphasize the reason The Whistlers is in a National Park.

- Add captions to identify each plant and animal illustrated.

- Reroute pedestrian traffic on the boardwalk to encourage more people to pass by Pod A. This could best be accomplished by removing the portion of the boardwalk which currently allows clock-wise moving visitors to begin circling the boardwalk without passing by Pod A.

Pod B

- Use bolder type and/or underscoring to emphasize the important communications (see specific objectives).

- Consider relocating Pod B on the eastern side of the boardwalk. This should only be done some further in-depth investigation of the traffic flow on the boardwalk showed approximately equivalent percentages of people passing by the east and west sides of the boardwalk.

Pod C

- Consider relocating Pod C to the eastern side of the boardwalk if further study of the traffic movement suggests that approximately equivalent percentages of people flow past both sides of the boardwalk.

Pod D

- Remove the word "Summit" from the directional symbol on the pod.

Trailhead B Sign

- Locate the sign closer to the trail leading up to the summit of The Whistlers. Though close to this trail, it should be closest to the beginning of the trail leading down the mountain. This should increase the likelihood that more people will stop and read the sign.

Register

- Include a supply of sharpened pencils in the Register.

Trails End Sign

- Change the wording of the sign to read "Beyond this point there is no official trail," rather than "...distinct trail." The worn path extending beyond the sign is very distinct.

- The location may warrant a change (see specific results for relevant considerations).

General

- Important information on all of the media should be emphasized in such a way as to draw visual attention to it. This can be accomplished by using bolder type, or, if this is economically unfeasible for existing signs, by underscoring (underlining) the important information.

- Perhaps both metres and feet should be included to indicate the mountain heights, distances, and other measures. Alternatively, scales showing both should be added.

While no figures were collected during the study, it seemed there were park visitors from many countries, most notably the United States. As a public relations gesture and as a consideration to those who live within the Imperial system, the use of the two systems should be considered. This might even serve in an educational way. Those who cannot relate to metric might start to get a sense of how it compares to their system, if the two appear side by side. This type of presentation is recognized as perhaps deviating from Government policy at some level. However, considering that the National Parks represent Canada to foreign visitors, and that the use of two systems would not likely be detrimental to "the cause" (going metric) if used only in this context, the use of both systems should at least be a consideration. Controversy about value (ie. "How many people does this effect? Is it worth it?), aside from public relations, can be addressed through a carefully conducted quantitative study.

- Add brief descriptive information for each illustration of plant and animal life depicted, so visitors can easily distinguish among the various types of life they see (ie. average length, weight, height, colour, etc.).

- Add lines connecting the names of plant and animal life to the illustrations. This will serve to remove any doubt about which name refers to which plant or animal. This is particularly important on signs or exhibits where there are a number of illustrations which might confuse readers.

- Accent every instance of the term "alpine tundra" by using bold text and/or underscoring the term.

- Relocate either Pod B or C (or both) if further study were to find approximately equivalent percentages of people passing by both sides of the boardwalk. This could be accomplished (if necessary) by rearranging the pods so they are more evenly distributed about the boardwalk. The result would be one (or two) pods on the east side of the boardwalk, and the remaining pods on the west side, where they currently are.

- Redirect visitor movement to encourage more to walk around the boardwalk in a counter-clockwise direction. Removing part of the boardwalk (see Pod A, above) would direct all people to the beginning of the side with the pods.

- Provide waste receptacles at the summit of The Whistlers, at two or three intermittent points along the trail, and at the Hike Preparatory sign at the beginning of the trail leading to the upper terminal building.

Long Term Recommendations

- The illustrations on all of the signs and pods should be labelled and described so visitors can easily identify what they see in real life.

- Consider adding signs specifically emphasizing the term "alpine tundra." These signs should be located near the area at the lower terminal where people line up to take the tram car to the top.

- The text of signs conveying important information should be changed to make the messages "more blatant." This was a comment expressed by a number of visitors, and also reflects the opinions of the fieldworkers, after discussions with people.

The important information seems to be: stay on the trails (the crossed-out boot sign was sometimes mistaken for "no boots allowed," and "make sure your boots are tied up properly" - young male visitor); do not feed the animals (as well as why not to - this is an important motivator); do not remove the rocks (and why); and information about preparing for a visit to the upper terminal area. While many people interviewed after reading the Preparatory signs at the lower terminal knew to expect harsher weather conditions at the top, just over half of those interviewed at the top thought they were adequately prepared for the conditions they experienced there. As one hiker suffering from being inadequately prepared for conditions at the summit suggested, the degree of temperature change (including the likely wind chill factor) should be part of the text preparing visitors for conditions at the top.

- Change the illustrations so that the plant and animal life are shown in proportions found in real life. If a Hoary Marmot is about three times the size of a Columbian Ground Squirrel, then the illustrations should reflect this proportional difference in size.

The following are long-term recommendations for the media at The Whistlers which also apply to future projects:

- When it is important that visitors remember certain information, the text should be phrased to make the message very clear, even at the risk of overdoing it. Subtle messages will surely escape some who read the signs.

- Lines or arrows should accompany all names on media, indicating exactly what the name refers to.

- There were few noticeability problems with The Whistlers media, and, as a "stand alone" interpretive area, the colour of the media supports (dark brown) should remain the way it is. However, if the colour scheme is changed in other media projects, or areas, there should be consistency between them and The Whistlers media.

- Install a highly durable, changeable, transparent covering on the signs. This would not discourage vandalism, but replacing the covering would be less expensive than refinishing or replacing vandalized signs. As well, perhaps the paint used for the metal supports (or frames) could be baked on to make it more resistant to peeling. This might be more expensive initially, but

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could prove cost-effective in the long run.

Recommendations for Future Projects

Many of the long-term recommendations made for The Whistlers Non-Personal Media project apply to future projects as well. Other recommendations follow.

- Pre-test the layout of future boardwalks and/or walkways, if at all possible. In making this recommendation, it is recognized that pre-testing all, or even many, possibilities is completely unrealistic. However, pre-testing a layout design which might be used in a number of media projects could provide useful information. For instance, there might be a number of situations where a boardwalk with exhibits will be of a circular design. If pre-testing revealed that exhibits located somewhere near entrances and exits from the boardwalk were the most noticed, this could be incorporated (as much as possible) into each project which had a similar planned layout. Cost considerations should be carefully considered.

When considering various alternatives at the planning stage of a media project, attention should be paid to a combination of stopping powers and traffic flow.

A guideline to follow is to calculate a "use quotient," by multiplying the estimated percentage of people passing by each exhibit, by the stopping power of each sign of exhibit. A simple example, using part of the boardwalk at The Whistlers in an imagined planning stage, will illustrate the use of the guideline.

Suppose two alternatives exist for planned interpretation of life in the alpine tundra at the boardwalk area. One plan calls for one large sign, interpreting two different aspects of the area. The alternative plan is to have a two smaller signs in different locations, which will convey virtually the same information. Planners have some knowledge about the general layout of the media project which lead them to some educated guesses.

Knowledge of the position of the single large sign on the proposed boardwalk lead planners to believe more people will take a path which leads them to pass by the sign in the first plan. (Suppose the traffic flow past this sign is estimated to be 90%.) Because of the proposed location of the two smaller signs in the alternative plan

(they might be located away from a very scenic view, for instance), planners believe fewer people will take a path leading them by these signs (suppose 30% pass by each of these signs).

Knowledge of the types of signs in both plans leads planners to suspect that the percentage of people who will stop at the sign in the first plan, will be about the same as that for each of the signs in the second plan. (In other words, the stopping powers of the signs would be about the same - say, 60%.)

Assuming costs were the same for both site plans, which one should the planners choose? By calculating a rough estimate of the possible use, the potential "reach" of the two plans can be compared:

<u>First Plan</u> (single large sign)

traffic flow		media stopping power		estimated use of media
	X		=	
(90%)		(60%)		(54%)

<u>Alternative Plan</u> (two smaller signs)

traffic flow		media stopping power		estimated use of media <u>at each site</u>
	X		=	
(50%)		(60%)		(30%)

use at each sign		# signs		estimated use of media
	X		=	
(30%)		(2)		(60%)

Assuming everything else about the two plans is basically comparable, the second plan seems to be the one to choose.

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If two or three different plans are under consideration, then the total "use quotient" should be estimated for each configuration, and be used as a factor in the final decision. The emphasis here is strongly on "as a factor" since the calculation is based on figures which are largely educated guesses. The stopping powers for the signs and exhibits will change, depending on such factors as the layout of the boardwalk, views which can be seen from each sign location, and so on. In many, if not most, cases, stopping powers will not be known. Signs and exhibits which are not yet completed, of course, have no information about them specifically. Insights from existing data, coupled with common sense, must be used to arrive at the best estimate in the truest sense of the word.

- Pre-test mock-ups of the signs or exhibits while they are still in the design phase. Pre-testing is the most beneficial when a radical change is contemplated (round versus rectangular signs, as an extreme example) or when a controversial issue cannot be resolved. Pre-testing is important when whatever outcome can have widespread effects (new designs for all future media, for instance).

- Encourage "active," easy participation, as much as possible, on the part of any reader of a sign, or viewer of an exhibit. This is an important thrust when an interpretive media project is still in the planning phases.

There seems to be a tendency for people to learn more quickly and retain more if they have been actively involved in the learning process, based on conversations with various educators. In the case of interpretive media, this can be an advantage in communicating information, if the designs of the media "engage" visitors with their surroundings. This could be accomplished by instructing individuals to turn in certain directions, or to look up, down, or wherever, in order to view some aspect of the landscape. Other techniques could include having people touch some specimen of the landscape, or a replica attached to the sign, in order to experience texture and other qualities. Even the suggestion to imagine something can actively engage the mind.

- When planning future interpretive media projects, careful consideration should be given to what the overall interpretive objectives are for the area. Are they to have visitors pick up general information about the area with less importance placed on where they learned it from, or to have visitors know something highly specific which they might not otherwise learn from alternate

sources of information? Clearly defining the goals should guide the creative efforts aimed at developing text and pictorial representations, as well as the development of measurable objectives for the media (discussed in the next section). If goals are not defined clearly, with strong underlying rationales, the whole media project, from design through implementation and evaluation, is off to a handicapped start.

Are the interpretive objectives focussed on developing a core of information , or are they emphasizing a variety, a breadth, of specifics relating to some general theme(s)? In the first case, the media would be expected to have somewhat of a "group" effect. To achieve this, the texts of a number of signs should "overlap" in the information they present. This would reinforce information that visitors might have already been exposed to, as well as increase the probability of exposure to the "core" message(s). The rationale here is perhaps best illustrated by considering two extremes.

At the one extreme are visitors who stop at all the signs (hypothetically, at least). Since there is an overlap or repetition of information, they will have been exposed to message "A" a number of times. Because of this, they will be more likely to come away from their visit with the information because it has been reinforced. At the other extreme are visitors who stop at only a few signs. The more signs that message "A" is presented on, the greater the likelihood that the ones these visitors stop at will present the message. Even though they might not be repeatedly exposed to message "A" because they only stop at a few signs, these visitors will have an increased chance of being exposed to the information at least once.

Alternatively, are the interpretive objectives to have visitors exposed to a broad range of variations on a general interpretive theme? In this case, the texts of the signs would reflect a wide variety of highly location-specific interpretive information. There would be little overlap of information among the signs.

Consider the use of lower criteria for sign stopping power other than those used in the objectives set for this study. The poor show overall in the stopping power of the media suggest that the criteria were too high.

Critically consider using the results of this study and the guidelines outlined in the Discussion of Evaluation Methodology section when setting criteria for measurable objectives of future media evaluation studies. (see section H.)

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Presumably, Parks Canada has the results for a number of media evaluation studies. This is a rich source of information, and it is suggested that the data undergo secondary analyses. This should be conducted by a person (or persons) familiar with the types of studies being analyzed, the methodology, and with an expertise in data analytic techniques. Secondary analyses are a way to "mine" information without the resources necessary for a full-scale study.

For instance, secondary analyses could yield useful information about position effect on the stopping powers of media. Is it better to keep a small odd number of exhibits relatively close together, but spread them out more if there are four or more? Is physical distance between signs very important?

Another important consideration is pedestrian flow on a boardwalk or walkway. What can be learned from studies which involved pedestrian traffic? What were the configurations? Were the results consistent with those of this study? Why? Why not?

The insights provided from this kind of questioning and analysis can be useful to future planning projects.

H. DISCUSSION OF EVALUATION METHODOLOGY

The methodology used in this evaluation is presumably an approach Parks Canada wishes to use in future media evaluations. Any approach, no matter how well developed, can benefit by the improvement of weaknesses which have become apparent through use. After use, analysis, and "fine-tuning," the result can only be a better methodology. In keeping with this thought, the following recommendations for the evaluation methodology are made:

Procedures and Materials

Standardize and more precisely define the study procedures and methodology. There are a number of ways in which this could be accomplished.

- All questionnaires should make use of screening questions, if at all applicable. In the case of post-test interviews, for instance, people should be first asked if indeed they have read the sign. There should be no assumptions made, just because a person is attending to a sign.

- Define terms precisely. Imprecision can lead to questions and answers which are open to interpretation, potentially invalidating the results of an otherwise sound study.

- Standardize the format and layout of all the questionnaires and forms as much as possible. This should include the number of response categories and their labels.

- Provide standard written instructions for all questions which might pose difficulty, or be subject to individual interpretation.

- Centralize the methodology sections from previous evaluation study reports. This could be maintained as an on-going reference source to use in developing and standardizing the evaluation methodology.

- Include a visitor opinion component for each sign or exhibit in future evaluations. This is a valuable source of information not only for evaluative purposes, but also for corrective ones, providing insights to help improve the media.

- Provide a "reference kit" for those collecting the data.

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Visitors often ask questions about the area, or for directions, and these kits could enable interviewers and observers to better help them out.

Measurable Objectives

The evaluation approach should use a combination of cognitive objectives and knowledge gains when assessing the effectiveness of each of the signs and exhibits. These could be combined in the measurable objective (ie. 75% of visitors will know "A" and the sign will have contributed 40% to this knowledge).

If the interpretive objectives emphasize more of a core of knowledge (see Recommendations for Future Projects), then the measurable objectives for the interpretive media project as a whole should emphasize the percent of visitors who attain the desired core knowledge, and de-emphasize the individual contribution of each sign or exhibit (ie. the knowledge gain).

If the focus of the interpretive objectives is to expose people to a wide range of specific information, then the measurable objectives generally should put more emphasis on the contribution of each of the signs or exhibits (knowledge gain). The overall assessment of the media project should focus on the breadth of information known by a certain percentage of visitors. An example will illustrate this. Suppose among all the individual signs and exhibits of a project, there are 60 highly specific "messages" interpreting one theme. An overall assessment of the media project success for this theme would answer a question such as: "Do 70% of the visitors know at least 50% of all (60) the highly specific interpretive messages?"

The criteria for both the cognitive objectives and the knowledge gains should be set giving consideration to such factors as:

(1) how likely are visitors to be exposed to the information in ways other than reading the sign;

(2) how specific or unique the information is to the sign in question; and,

(3) what the emphasis of the media project is (a "core" versus a "breadth" of interpretive information - see Recommendations for Future Projects). Of course, answers to these types of questions will have to be based on subjective assessments, for the most part.

Once these factors have been considered, the setting of the criteria for the objectives should be done according to the

guidelines which follow.

If visitors are likely to be exposed to various sources for the information in question, then the criterion for the measurable objective should be set high. Many visitors will already know the information before reading the sign. The criterion for the knowledge gain, on the other hand, should be small. A sign could not be expected to make great contributions to people's knowledge, if they are able to gain that knowledge from sources other than the sign. As well, it is more difficult to increase an already high level of knowledge.

In a scenario where the information is not likely to be communicated by sources other than the sign, the cognitive objective may be set somewhat lower than in the case above, while the criterion for the knowledge gain should be quite high.

The generality or specificity of the information is likely related to the number of sources of information. It seems probable that more general information (not to feed the wildlife, for example) would appear in various publications, and be stressed in a number of ways. More specific information (the development of the "natural arch," for example), would likely be available only on a specific sign. Of course, this is more a rule of thumb than a definitive statement, and there may be many exceptions.

For objectives which have to do with locating mountains etc. from pictorial representations, the criteria for the objectives should be reasonable for the task. It is not something people can do easily, and it is recommended that the criteria be kept moderate, lower than those for other cognitive objectives.

Related to this, when there are only two or three bits of information which people attempt to locate and the feature is a general one (range of mountains, as opposed to a peak), then perhaps simple instructions would be better than a pictorial representation (examples: "to your left," "behind you," etc.) These types of communications are encouraged in this situation. For objectives related to these, the criterion should remain higher than for locating tasks as described above.

When setting objectives for media which are physically located one after the other in row-like fashion, the stopping power objectives for the media in the middle should be set somewhat lower than for media at the beginning and end.

When assessing the results of evaluation studies based on using both cognitive objectives and knowledge gains, attention should be paid to four basic categories of outcomes:

		Cognitive Mastery Objective	
		Achieved	Not Achieved
Knowledge Gain Objective	Achieved	(1)	(2)
	Not Achieved	(3)	(4)

Outcome (1) indicates definite success. No adjustments to the criteria for the cognitive objective or the knowledge gain should be made, unless they are presently very low.

Outcome (2) indicates the sign is successful, and suggests that the criterion for the cognitive objective be lowered.

Outcome (3) suggests no conclusive comments about the success of the sign. With a very small knowledge gain (especially one that does not make the difference between achieving and not achieving the cognitive objective), the sign could be judged as unsuccessful. The criterion for the cognitive objective should be set higher in this case. Perhaps the knowledge gain objective should be smaller.

Outcome (4) indicates definite lack of success. Recommendations about the sign or exhibit should be implemented. Decisions about whether or not the criteria for the objectives should be changed should ideally be reserved until after another evaluation.

Note that the criteria determining success or failure for each of the conditions in the table above should be statistically significant. Knowledge differences should be tested using any appropriate test for the difference between two percentages. The appropriate test statistic for the cognitive mastery objective depends upon the sampling plan, and is either the one which appears in Appendix D, or that in Cochrane (1963).

In summary, these then are the discussions, recommendations, and guidelines for the evaluation of interpretive media.

Behavioural Team

I. REFERENCES

Boyle, C., "The Whistlers Non-Personal Interpretive Media Evaluation Project Planning Report," Parks Canada, Western Region Office, Calgary, Alberta, May, 1983.

Cochran, W.G., "Sampling Techniques," Wiley and Sons, 1963.

Glass, G. and Stanley, J., "Statistical Methods in Education and Psychology," Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1970.

"The Whistlers I.M.U. Resource Document," Parks Canada, Jasper National Park, (dates varied).

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J. APPENDICES

Appendix A - Glossary of Terms

Appendix B - Data Collection Schedule

Appendix C - Revised Questionnaires

Appendix D - Calculation of Standard Errors and Confidence Limits

Appendix A

Glossary of Terms

Confidence Interval

- The range of results which would be expected from repeated sampling of the population. The confidence interval depends on the level of precision desired when generalizing the results, and on the Standard Error (or Standard Deviation, as applicable) of the results. A commonly used level of precision is 95%, in which case the Standard Error is multiplied by 1.96, and the results would not be expected to vary by more than plus or minus this figure in 95% of the samples drawn from the population.

ie.

- 60% answer question correctly
- Standard Error for this question is 2.6%
- at the 95% confidence level, results would be expected to vary by plus or minus 1.96 x 2.6 or 5%
- thus, for 95% of different groups of people interviewed, the question would be answered correctly by between 55% and 65% of respondents

Holding Power

- A measure of the interest people display in a sign or exhibit. Holding Power is the ratio of how long people spend at a sign or exhibit, to the length of time required to read the text. A Holding Power of 1.0 indicates people are spending enough time at the sign/exhibit to at least read the text; greater than 1.0 indicates people are spending more time at the sign/exhibit; less than 1.0 means they are spending less time. (see also Level of Interest - Media)

Knowledge Gain

- A measure of the effectiveness of the sign/exhibit in question. It is the difference between the percent of people knowing the correct answer to a specific question before reading the appropriate sign/exhibit, and the percent knowing the correct answer after reading the sign/exhibit. The knowledge gain is the difference between pre-test and post-test results.

Level of Interest

Media Level of Interest

- The degree of interest which visitors display in a given sign/exhibit. Visitors display interest in two ways: by stopping at the sign/exhibit, and by reading it (or interacting with it). Thus, two objective measures of visitors' interest in the media are the percent of people stopping at the sign/exhibit, and how long people spend at the media. (see also Stopping Power - Media, and Holding Power)

Media

- A general term referring to all the signs and exhibits which interpret various aspects of The Whistlers to park visitors. The term "sign/exhibit" is often used as a synonym.

Population

- The total group of individuals under consideration (ie. all the visitors to The Whistlers; all the people reading a particular sign).

Post-test

- A term describing interviews (and their results) conducted with individuals after they had read the sign/exhibit in question.

Pre-test

- A term describing interviews (and their results) conducted with individuals before they had read the sign/exhibit in question.

Respondent

- Someone who answers, or responds to, questions .

Sample

- A number of individuals selected from a total group under consideration (ie. those interviewed after reading a sign constitute a sample from all the people reading that particular sign).

Standard Error (SE)

- The degree by which results would be expected to vary if repeated samples were taken from the population in question. The SE is used in determining the confidence interval for a result. (see also Confidence Interval)

Stopping Power

Media Stopping Power

- A measure of the interest people display in a sign or exhibit. It is defined as the number of people who stop at a sign or exhibit as a percent of those who stop at the site. (see also Level of Interest, Media)

Tracking

- The procedure of observing and noting the pedestrian movements of people (ie. which paths they take).

Appendix B

Data Collection Schedule

All of the study data was collected during a period of six and one-half weeks, beginning on July 29 and ending on September 11, 1983. Data collection was performed according to the schedule drawn up by Parks Canada, and is outlined on the pages which follow. In some cases, there were slight revisions to the established schedule. These revisions, approved by Parks Canada, were at the suggestion of Behavioural Team in order to increase some very small sample sizes, and/or to compensate for time missed because of inclement weather. The schedule as outlined below reflects all these revisions.

Because of the sampling design (simple, random), there would have been no difference between the analysis of weighted and unweighted data. Weights would have been applied to both numerator and denominator of the ratios, thus effectively cancelling out. Thus, all the results presented are based on unweighted data.

MALIGNE VALLEY / WHISTLERS EVALUATION PROJECT

JULY 1983

TIME	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	28 THURSDAY MALIGNE	29 FRIDAY WHISTLERS	30 SATURDAY WHISTLERS
09:00-10:00						POD B PRE	PREPARATORY PRE — — AFFECTIVE
10:00-11:00					ROADSIDE 3,4 POST — — ROADSIDE 5 STOP/HOLD	TRAIL END STOP/HOLD	PANORAMA STOP / HOLD
11:00-12:00							
12:00-13:00							
13:00-14:00					SCHAFFER V.P. POST — — MALIGNE LAKE OSX STOP / HOLD	TRAIL HEAD B POST	TRAILEND STOP/HOLD
14:00-15:00							
15:00-16:00						POD A PRE	POD B POST
16:00-17:00							

MALIGNE VALLEY / WHISTLERS EVALUATION PROJECT

JULY / AUG. 1983

TIME	31 SUNDAY	1 MONDAY	2 TUESDAY	3 WEDNESDAY	4 THURSDAY	5 FRIDAY	6 SATURDAY
	MALIGNE	MALIGNE	WHISTLERS	MALIGNE	MALIGNE	WHISTLERS	WHISTLERS
09:00-10:00			POD B STOP/HOLD			LOWER TRAIL STOP / HOLD	LOWER TRAIL POST
10:00-11:00		ROADSIDE 6 STOP / HOLD			SCHAFFER V.P. POST		
11:00-12:00	ROADSIDE 3,4 PRE	MALIGNE LAKE OSX -- PRE		ATHABASCA V.P. POST	ROADSIDE 5 STOP/HOLD		
12:00-13:00	BEHAVIOUR / TRACK		TRACKING	ROADSIDE 5 STOP/HOLD	SCHAFFER V.P. STOP / HOLD	POD D POST	POD D PRE
13:00-14:00		ATHABASCA V.P. STOP / HOLD	TRAILEND POST				
14:00-15:00	ROADSIDE 2 STOP / HOLD	ROADSIDE 7 PRE		ROADSIDE 2 STOP/HOLD	MODEL QUEST		
15:00-16:00	ROADSIDE 6 POST		REGISTER STOP/HOLD	MEDICINE LAKE OSX -- PRE		TRAILHEAD POST	LOCATOR STOP / HOLD
16:00-17:00							

MALIGNE VALLEY / WHISTLERS EVALUATION PROJECT

AUGUST 1983

TIME	7 SUNDAY	8 MONDAY	9 TUESDAY	10 WEDNESDAY	11 THURSDAY	12 FRIDAY	13 SATURDAY
	MALIGNE	MALIGNE	WHISTLERS	MALIGNE	MALIGNE	MALIGNE	WHISTLERS
09:00-10:00			LOWER TRAIL PRE				GENERAL PRE
10:00-11:00		ROADSIDE 6 PRE		ROADSIDE 5 PRE	BEHAVIOUR / TRACKING	ROADSIDE 5 POST	
11:00-12:00	ROADSIDE 7 PRE	ROADSIDE 3,4 STOP / HOLD		GENERAL POST			PREPARATORY STOP/HOLD
12:00-13:00	ROADSIDE 6 STOP / HOLD	ROADSIDE 3,4 PRE		GENERAL PRE		SCHAFFER V.P. PRE	
13:00-14:00			POD D PRE				
14:00-15:00	DEMOGRAPHIC	GENERAL PRE		ROADSIDE 1 STOP / HOLD	MEDICINE LAKE OSX STOP/HOLD	SCHAFFER V.P. STOP / HOLD	
15:00-16:00	MALIGNE LAKE OSX -- POST		POD A PRE			ROADSIDE 1 POST	REGISTER STOP/HOLD
16:00-17:00							

TRACKING

TRACKING

MALIGNE VALLEY / WHISTLERS EVALUATION PROJECT

AUGUST 1983

TIME	14 SUNDAY MALIGNE	15 MONDAY WHISTLERS	16 TUESDAY WHISTLERS	17 WEDNESDAY MALIGNE	18 THURSDAY MALIGNE	19 FRIDAY WHISTLERS	20 SATURDAY WHISTLERS
09:00-10:00		POD D POST	PANORAMA POST			PREPARATORY POST	POD A STOP / HOLD
10:00-11:00	ROADSIDE 7 STOP / HOLD			ROADSIDE 2 POST	MEDICINE LAKE OSX -- POST		
11:00-12:00	ATHABASCA V.P. POST		POD B PRE				TRAILEND PRE
12:00-13:00	ROADSIDE 7 POST	SUMMIT QUEST (locator)		MODEL QUEST	GENERAL PRE		
13:00-14:00						POD C POST	LOCATOR STOP / HOLD
14:00-15:00	ATHABASCA V.P. PRE			ROADSIDE 3,4 STOP / HOLD	ATHABASCA V.P. STOP / HOLD		
15:00-16:00		PANORAMA POST	REGISTER STOP/HOLD	DEMOGRAPHIC	ROADSIDE 2 PRE	POD D STOP/ HOLD	PANORAMA STOP / HOLD
16:00-17:00							

TRACKING

TRACKING

MALIGNE VALLEY / WHISTLERS EVALUATION PROJECT

AUGUST 1983

TIME	21 SUNDAY	22 MONDAY	23 TUESDAY	24 WEDNESDAY	25 THURSDAY	26 FRIDAY	27 SATURDAY
			WHISTLERS	MALIGNE	MALIGNE	MALIGNE	WHISTLERS
09:00-10:00			LOWER TRAIL STOP / HOLD				POD C POST
10:00-11:00				ROADSIDE 6 POST	DEMOGRAPHIC	ROADSIDE 6 PRE	
11:00-12:00			POD C PRE		ROADSIDE 1 PRE		POD C STOP / HOLD
12:00-13:00				MEDICINE LAKE OSX -- POST	GENERAL POST	MALIGNE LAKE OSX -- POST	
13:00-14:00			PANORAMA PRE		ROADSIDE 7 POST		
14:00-15:00				MEDICINE LAKE OSX -- STOP / HOLD		MALIGNE LAKE OSX -- STOP / HOLD	
15:00-16:00			TRAILHEAD B STOP / HOLD	ROADSIDE 1 POST	BEHAVIOUR / TRACK	ROADSIDE 2 PRE	POD B STOP/HOLD
16:00-17:00							

TRACKING

MALIGNE VALLEY / WHISTLERS EVALUATION PROJECT

AUGUST / SEPTEMBER 1983

TIME	28 SUNDAY	29 MONDAY	30 TUESDAY	31 WEDNESDAY	1 THURSDAY	2 FRIDAY	3 SATURDAY
09:00-10:00		SUMMIT QUEST (locator)	POD B POST	LOWER TRAIL STOP / HOLD			
10:00-11:00	ROADSIDE 3,4 PRE					PANORAMA PRE	TRAILHEAD B PRE
11:00-12:00	ROADSIDE 6 STOP / HOLD		TRAILHEAD B STOP/HOLD		ATHABASCA V.P. PRE		
12:00-13:00		TRAILHEAD PRE		GENERAL POST	SCHAFFER V.P. PRE	POD A POST	POD C PRE
13:00-14:00	ROADSIDE 5 POST						
14:00-15:00	ROADSIDE 7 STOP / HOLD				SCHAFFER V.P. PRE		
15:00-16:00		AFFECTIVE QUEST	PREPARATORY STOP / HOLD	POD D STOP / HOLD	MALIGNE LAKE OSX -- PRE	PREPARATORY POST	POD C STOP/HOLD
16:00-17:00							

TRACKING

TRACKING

MALIGNE VALLEY / WHISTLERS EVALUATION PROJECT

SEPTEMBER 1983

TIME	4 SUNDAY	5 MONDAY	6 TUESDAY	7 WEDNESDAY	8 THURSDAY	9 FRIDAY	10 SATURDAY
	MALIGNE	MALIGNE	WHISTLERS		MALIGNE	WHISTLERS	WHISTLERS
09:00-10:00						LOWER TRAIL PRE	
10:00-11:00	ROADSIDE 3,4 STOP/HOLD & POST	ATHABASCA V.P. PRE	POD A POST		ROADSIDE 3,4 POST		POD A POST
11:00-12:00	DEMOGRAPHIC	ROADSIDE 2 STOP / HOLD			MEDICINE LAKE OSX -- PRE		
12:00-13:00			TRAILEND PRE	TRACKING		PANORAMA POST	POD A STOP/HOLD
13:00-14:00		ROADSIDE 1 PRE			MEDICINE LAKE OSX -- PRE		
14:00-15:00		ROADSIDE 7 STOP / HOLD	TRAILEND POST		ROADSIDE 2 POST	PANORAMA PRE	POD C POST
15:00-16:00		ROADSIDE 1 STOP / HOLD					
16:00-17:00		ROADSIDE 5 PRE					

MALIGNE VALLEY / WHISTLERS EVALUATION PROJECT

SEPTEMBER 1983

TIME	11 SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	WHISTLERS						
09:00-10:00	LOWER TRAIL POST						
10:00-11:00							
11:00-12:00							
12:00-13:00	TRAIL END PRE & POST						
13:00-14:00							
14:00-15:00	GENERAL POST						
15:00-16:00							
16:00-17:00							

Appendix C

Revised Questionnaires

All of the questionnaires and other data collection forms used for the study were designed and pre-tested by the Parks Canada Evaluation Team. During the early phases of the data collection period, it became evident to the interviewers that further modifications to some of the forms were necessary to make the questions more clear, or to otherwise improve the flow of the interviews. The necessary changes were made and these forms were used during the study. This appendix presents those questionnaires and/or forms which were changed from the original ones provided by Parks Canada. For copies of the original set provided, see "The Whistlers Non-Personal Interpretive Media Evaluation Project Planning Report" by C. Boyle, May 1983.

9. Summit Locator - Summit

Date: _____ Stint Start time: _____ End time: _____

Interview type: _____ Weather: _____ Evaluator: _____

Hi, I'm working for Parks Canada. We are interested in what you know about this area. May I ask you a question?

If contact refuses, ask for reason.

COULD YOU PLEASE USE THE LOCATOR TO POINT TO AND NAME TWO MOUNTAINS?

Party Size	Response	Party Size	Response

Appendix D

Calculation of Standard Errors

and

Confidence Limits

The standard error (SE) or the standard deviation (SD), whichever was appropriate, was calculated for each of the results presented in the report. (The exceptions to this are the results for holding power and the differences in knowledge between pre- and post-test interviews. The value gained by knowing the statistical significance of these results did not justify the effort, under the budget constraints.)

For each multiple choice question, the formula used was the standard one for estimating SE for percentages, as shown in (1) below. Responses were considered to be binomial - either respondents gave the correct answer or they did not. Thus, all "incorrect," "other," "no response," and/or "not applicable" categories were considered as one.

The population size was considered to be 51,000 for pre-test results, as potentially, any one of these visitors to The Whistlers could have been interviewed. For post-test results the population size was calculated as 51,000 multiplied by the stopping power of the media in question. Of all the visitors to The Whistlers, only the percentage stopping and reading the sign (media stopping power) can be considered to form the population of post-test interviewees.

In either case, the size of the sample interviewed was compared to the population size. If this ratio was greater than .01, a formula containing a correction factor was applied to the calculation of the SE, as shown in (3) below.

The 95% confidence intervals were calculated by multiplying SE by the coefficient of 1.96. In essence, this means that in 95% of all the different samples which might have been interviewed, the results would not be expected to vary by more than plus or minus SE x 1.96.

(1) Standard Error of the Percentage

(infinite population size)

$$SE = \sqrt{\frac{p\,(100 - p)}{n}}$$

where

n = sample size

p = percent of respondents answering correctly

(2) Standard Error of the Percentage

(sample to population ratio is greater than .01)

$$SE = \sqrt{\frac{N - n}{n - 1} \times \frac{p\,(100 - p)}{N}}$$

where

N = population size

n = sample size

p = percent of respondents answering correctly

Note that because of the cluster sampling design, a ratio estimate formula for calculating the standard error could have been used (see Cochran, 1963, p. 30). However the formula presented above is not incorrect, and, as suggested by Cochran, is likely a conservative estimate of the standard error.

For numeric results (stopping and holding power, for example), the SD (standard deviation) for each result was obtained by taking the square root of the variance. This was available from the analysis

printouts. The 95% confidence intervals were constructed in the same manner as outlined above - multiplying the SD by 1.96.

POOR

QUALITY

ORIGINAL